



May 2009

**Section 27
Environmental Protection Act
R.S.O. 1990**

Sample Application Package for a
Certificate of Approval for a Waste Disposal Site
(Small Municipal Landfill Site Expansion)

PIBS 6839e

Protecting our environment.



FOREWORD

This document has been produced by the Environmental Assessment and Approvals Branch as an example of a complete application submission for a Certificate of Approval for a waste disposal site. While every effort has been made to ensure the accuracy of the information contained in this document, it should not be construed as legal advice.

The following forms have been used in this sample application package:

- [Application for a Provisional Certificate of Approval for a Waste Disposal Site](#)
- [Costs for EPA s.27 Applications, Supplement to Application for Approval](#)

Instructions for completing these forms and additional information about Air & Noise Certificates of Approval is available in the following publications:

- [Green Facts: Certificates of Approval – Waste Disposal and Management](#)
- [Guide to Applying for Approval of Waste Disposal Sites](#)
- [Guide – Application Costs for Waste Management, EPA s.27](#)
- [Landfill Standards: A Guideline on the Regulatory and Approval Requirements for New and Expanding Landfilling Sites \(May 1998\)](#)

For more information about Certificates of Approval or to obtain an application package, please visit the Ministry of the Environment Internet site at <http://www.ene.gov.on.ca> or contact:

Ministry of the Environment
Environmental Assessment and Approvals Branch
2 St. Clair Ave W, Floor 12A
Toronto, ON M4V 1L5

Toll Free: 1-800-461-6290
Phone: 416-314-8001
Fax: 416-314-8452
Email: EAABGen@ene.gov.on.ca

**APPLICATION FOR AMENDMENT TO PROVISIONAL CERTIFICATE
OF APPROVAL FOR A WASTE DISPOSAL SITE**

**SmallCity Landfill Expansion
SmallCity, Ontario**

NOVEMBER 2008

**Prepared by:
ENG Consulting Inc.**

ENG Consulting Inc.
111 One Way Drive
SmallCity, Ontario
Z9Y 8W7

November 13, 2008

Ontario Ministry of the Environment
Director Part V, EPA, Environmental Assessment and Approvals Branch
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario M4V 1 L5

RE: Application for a Certificate of Approval (Waste Disposal), SmallCity Landfill Expansion

On behalf of the Regional Municipality of SmallCity, this application is being made under Part V (Section 27) of the Environmental Protection Act (EPA) to amend Provisional Certificate of Approval (C of A) No. G 000001 for the expansion of the SmallCity Landfill in the Regional Municipality of SmallCity, Ontario to increase the approved disposal capacity of the site, thereby extending its operational life.

This cover letter is accompanied by the completed application form and the various supporting documentation required of the application including the Site Design and Operating Report and the Site Hydrogeology, Hydrology and Geotechnical Study Report.

A cheque for the application fee associated with the requested approval is attached to the completed application form in the amount of \$22,700.

Should there be questions on any aspect of this submission, please do not hesitate to contact the undersigned.

Yours truly,

ENG Consulting Inc.



Jordan McGrady, P.Eng.
Senior Environmental Engineer

JM/cg

Attached:

- Completed Application Form
- Attachment 1: Legal Survey
- Attachment 2: Copy of Provisional Certificate of Approval and Amendments
- Attachment 3: Environmental Assessment Screening Report
- Attachment 4: Summary of Public Consultation
- Attachment 5: Design and Operations Report
- Attachment 6: Hydrogeology, Hydrology and Geotechnical Study Report
- Attachment 7: Air and Noise Impact Assessment Report

CC:

- District Manager, Ministry of the Environment, Central Ontario, Ontario
- Public Liaison Committee
- A. Gregate, Director, SmallCity Public Works Department
- Jordan McGrady, ENG Consulting Inc.

General Information and Instructions

Form Version 1.2

General:

Information requested in this form is collected under the authority of the *Environmental Protection Act*, R.S.O. 1990 (EPA) and the *Environmental Bill of Rights*, C. 28, Statutes of Ontario, 1993, (EBR) and will be used to evaluate applications for approval of waste disposal sites under Section 27, EPA. Questions about this collection of information should be directed to: Information Unit Supervisor, Environmental Assessment and Approvals Branch, 2 St. Clair Ave. W, Floor 12A, Toronto ON M4V 1L5. Telephone outside Toronto 1-800-461-6290 or in Toronto 416-314-8001.

Instructions:

1. **Applicants are responsible for ensuring that they complete the most recent application form.** When completing this form, please refer to the following guidance material: the "Guide for Applying for Certificate of Approval of Waste Disposal Sites, Section 27, 30, 31 and 32, EPA," (referred to as the Guide) and "Guide - Application Cost for Waste Management, S. 27, EPA". Application forms and supporting documentation are available from the Environmental Assessment and Approvals Branch toll free at 1-800-461-6290 (locally at 416-314-8001), from your local District Office of the Ministry of the Environment, and in the "Publications" section of the Ministry of the Environment website at <http://www.ene.gov.on.ca/envision/gp/index.htm#disposal>.
2. Questions regarding completion and submission of this application should be directed to the Environmental Assessment and Approvals Branch, 2 St. Clair Avenue West, Floor 12A, Toronto, Ontario, M4V 1L5, telephone number 1-800-461-6290 or (416) 314-8001, or to your local District Office of the Ministry of the Environment.
3. A complete application consists of:
 - 1) a completed and signed application form;
 - 2) all required supporting information identified in this form, the guidance material, and
 - 3) a certified cheque, money order or credit card payment, in Canadian funds, made payable to the *Ontario Minister of Finance* for the applicable application fee.

This form must be completed with respect to all requirements identified in the guidance material in order for it to be considered an application for approval.

INCOMPLETE APPLICATIONS WILL BE RETURNED TO THE APPLICANT. The Ministry may require additional information during the technical review of any application initially accepted as complete.

4. The original application, along with the supporting information and the application fee, must be sent to:

**The Ministry of the Environment,
Director, Environmental Assessment and Approvals Branch, Section 27
2 St. Clair Avenue West, Floor 12A, Toronto, Ontario, M4V 1L5**

A copy of the application and the supporting information must be sent to the local Ministry District Office which has jurisdiction over the area where the facilities are located. To locate the appropriate local Ministry District Office, please visit the Ministry of the Environment Internet site at: www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist.

A copy of the application and the supporting information must also be sent to the local municipality (unless the application is for a revocation or an amendment that is environmentally insignificant or the applicant is a municipality). Copies shall be provided to both the upper and lower tier municipality if applicable to the area where this facility is located.

A cover letter addressed to the Director of Environmental Assessment and Approvals Branch should accompany both submissions and indicate that a copy of the complete submission has been sent to the local District Office and local municipality(s).

5. Information contained in this application is not considered confidential and will be made available to the public upon request. Information submitted as supporting information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and EBR. If you do not claim confidentiality at the time of submitting the information, the Ministry may make the information available to the public without further notice to you.
6. The electronic version of this form incorporates several features to assist you with completing your application. The form will calculate certain values based on the information you enter and will assist you in ensuring that all required information is included with your application. This form has been save-enabled; you can save a copy of this form that includes any information you have entered. You are encouraged to use the electronic version of this form, available on the Ministry of the Environment website at: <http://www.ene.gov.on.ca/envision/gp/4181e.pdf>.

Application for a Provisional Certificate of Approval for a Waste Disposal Site

Ce formulaire est disponible en français

For Office Use Only			
Reference Number	Payment Received	Date (y/m/d)	Initials
	\$		

Application Summary

Applicant Name (*legal name of individual or organization as evidenced by legal documents*)

Regional Municipality of SmallCity

Project Name (*Project identifier to be used as a reference in correspondence*)

SmallCity Landfill

Project Description Summary (*If EBR is applicable, this summary will be used in the EBR posting notice*)

An expansion of the SmallCity Landfill to increase the approved disposal capacity of the site by 49,500 cubic metres, thereby extending its operational life. The expansion also includes an additional 36.4 hectares located to the north and east of the site for use as additional buffer lands.

Required Information	Completed (yes or no)
<input checked="" type="checkbox"/> Project Name & Description	Yes
<input checked="" type="checkbox"/> Section 1: Applicant Information	Yes
<input checked="" type="checkbox"/> Section 2: Project Information	Yes
<input checked="" type="checkbox"/> Section 3: Site Information	Yes
<input checked="" type="checkbox"/> Section 4: Facility Information	Yes
<input checked="" type="checkbox"/> Section 5: Regulatory Requirements	Yes
<input checked="" type="checkbox"/> Section 6: Supporting Information	Yes
<input checked="" type="checkbox"/> Payment Information Section	Yes
Application Status: FORM COMPLETE. Print Completed Form	

Cost Summary:

Administrative processing (<i>required for most applications</i>)	\$ 200.00	Review of Application	\$ 22,500.00
Hearing (<i>if mandatory or necessary</i>)	\$ 0.00	TOTAL COST	\$ 22,700.00

Section 1: Applicant Information

1.1 Applicant Information (Owner of works/facility)

Applicant Name (<i>legal name of individual or organization as evidenced by legal documents</i>)		Business Identification Number
Regional Municipality of SmallCity		0
Business Name (<i>the name under which the entity is operating or trading - also referred to as trade name</i>)		<input checked="" type="checkbox"/> same as Applicant Name
Regional Municipality of SmallCity		
Applicant Type:		North American Industry Classification System (NAICS) Code
<input type="checkbox"/> Corporation	<input type="checkbox"/> Federal Government	562210 Waste Treatment and Disposal
<input type="checkbox"/> Individual	<input checked="" type="checkbox"/> Municipal Government	
<input type="checkbox"/> Partnership	<input type="checkbox"/> Provincial Government	
<input type="checkbox"/> Sole Proprietor	<input type="checkbox"/> Other (<i>describe</i>):	
Business Activity Description (<i>a description of the business endeavour, this may include products sold, services provided or machinery/equipment used, etc.</i>)		

1.2 Applicant Physical Address

Civic Address- Street information (<i>includes street number, name, type and direction</i>)		Unit Identifier (<i>i.e. apartment number</i>)		
123 Cul-de-Sac Road				
Survey Address <i>(Not required if Street Information is provided)</i>	Lot	Conc.	Part	Reference Plan
Municipality /Unorganized Township	County/District	Province/State	Country	Postal Code
Smallcity		Ontario	Canada	A1B 2C3
Telephone Number (<i>include area code & ext.</i>)	Fax Number (<i>include area code</i>)	Mobile Number (<i>include area code</i>)	E-mail Address	
(987)555-1234 ext.	(987)555-1235		landfill@smallcity.ca	
Geo Reference (<i>southwest corner of property</i>)				
Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting
NAD83	17	10-20m	GPS	13456789
				UTM Northing
				987654321

1.3 Applicant Mailing Address

Same as Applicant Physical Address? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (<i>If no, please provide site address information below</i>)				
Civic Address - Street information (<i>civic numbering and street information including street number, name, type and direction</i>)		Unit Identifier (<i>i.e. apartment number</i>)		
123 Cul-de-Sac Road				
Delivery Designator	Delivery Identifier	Postal Station		
Smallcity	Province/State	Country	Postal Code	
	Ontario	Canada	A1B 2C3	

1.4 Statement of Applicant

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted in support of this application is complete and accurate in every way and I am aware of the penalties against providing false information as per s. 184(2) of the *Environmental Protection Act*.
- The Project Technical Information Contact identified in this form is authorized to act on my behalf for the purpose of obtaining approval under Section 27 of the EPA for the waste disposal site identified herein.
- I have used the most recent application form, as obtained from the Ministry of the Environment Internet site at <http://www.ene.gov.on.ca/en/publications/forms/index.php#PartWaste> or the Environmental Assessment and Approvals Branch at 1-800-461-6290.

Name of Signing Authority (<i>please print</i>)	Title	
A. Gregate	SmallCity Public Works Manager	
Telephone Number (<i>including area code & extension</i>)	Fax Number (<i>including area code</i>)	E-mail Address
(987)555-1234 ext. 123	(987)555-1235	aggregate@smallcity.ca
Mobile Number (<i>including area code</i>)	Signature	Date (<i>y/m/d</i>)
(987)555-1236		

Section 2: Project Information

2.1 Application Type

Type of Application:

- | | |
|--|---|
| <input type="checkbox"/> New Certificate of Approval | <input type="checkbox"/> New Comprehensive Certificate of Approval |
| <input checked="" type="checkbox"/> Amendment to Current Certificate of Approval | <input type="checkbox"/> Convert Existing Approval to Comprehensive Certificate of Approval |
| <input type="checkbox"/> Administrative Amendment to Current Certificate of Approval | <input type="checkbox"/> Revocation |
| <input type="checkbox"/> Compliance with Conditions of the Existing Approval | |

Is this a submission for Preliminary Review of your application?

- Yes No *If yes, the application must be complete and finalized before you submit it for Preliminary Review.*

Application Initiated by:

- Proponent Environmental Assessment and Approvals Branch Provincial Officer Order (attach copy) Other (specify): _____

Current Certificate of Approval

Certificate of Approval Number

G000001

Certificate of Approval Date of Issue (yyyy/mm/dd)

1985/01/01

Project Schedule

Estimated date for start of construction/installation (yyyy/mm/dd)

2010/03/01

Estimated date for start of operation (yyyy/mm/dd)

2011/06/01

Comprehensive Certificate of Approval – Eligibility Screening Questionnaire

Screening Result: You are not required to complete the screening questionnaire

2.2 Project Technical Information Contact

Name of Project Technical Information Contact	Company		
Jordan McGrady	ENG Consulting Inc.		
Telephone Number (include area code & ext.) (897)555-2222 ext.	Fax Number (include area code) (897)555-2223	Mobile Number (include area code) (897)555-1234	E-mail Address jmcgrady@enginc.com
Address Information:			
Same as Applicant Mailing Address? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If no, please provide technical information contact address information below)			
Civic Address - Street information (civic numbering and street information including street number, name, type and direction) 111 One Way Drive		Unit Identifier (i.e. apartment number)	
Delivery Designator	Delivery Identifier	Postal Station	
Municipality /Unorganized Township Smallcity	Province/State Ontario	Country Canada	Postal Code Z9Y 8W7

Section 3: Site Information



3.1 Site Address - (location where activity/works applied for is to take place)

Same as Applicant Physical Address? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If no, please provide site address information below)					
Civic Address- Street information (includes street number, name, type and direction)					Unit Identifier (i.e. apartment number)
Survey Address <i>(Legal description of the site)</i>	Lot 1	Conc. X	Part 1 and 2	Reference Plan 0001	
Municipality /Unorganized Township Smallcity	County/District		Postal Code A1B 2C3		
Non Address Information (includes any additional information to clarify applicants' physical location)					
Geo Reference (southwest corner of property)					
Map Datum NAD83	Zone 18	Accuracy Estimate +/- 10m	Geo Referencing Method GPS	UTM Easting 2345678	UTM Northing 2345678



3.2 Site Information - (location where activity/works applied for is to take place)

Site Name SmallCity Landfill Site	MOE District Office Smallcity District Office
Is the site (property) that is the subject of this application owned by the Applicant? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If no, please attach the owner's name, address and a signed letter granting consent for the installation and operation of the facilities</i>	
Is the Applicant the operating authority of the site that is the subject of this application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If no, please attach the operating authority name, address and phone number</i>	
Is the Site located in an area of development control as defined by the Niagara Escarpment Planning & Development Act (NEPDA)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes, please attach a copy of the NEPDA permit for proposed activity/work</i>	
Is the Site located on the Oak Ridges Moraine Conservation Area as defined by the Oak Ridges Moraine Conservation Plan (ORMCP), a regulation made under the Oak Ridges Moraine Conservation Act (ORMCA)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes, please attach proof of Municipal planning approval for the proposed activity/work</i>	



3.3 Site Zoning and Classification

Present Land Use Landfill site	Present Official Plan Designation Solid Waste Disposal Site	Present Zoning Category Waste Management Facility Landfill
Adjacent Land Use (select all that apply) <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input type="checkbox"/> Residential <input type="checkbox"/> Agricultural <input type="checkbox"/> Recreational <input checked="" type="checkbox"/> Other(specify): Residential - Serviced, Rural		
Does the site currently have proper zoning for the proposed facility?	Has this facility been identified as part of the Official Plan? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Has the Applicant received municipal zoning confirmation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes, please attach correspondence from the municipality</i>		

Section 4: Facility Information

4.1 Facility Description (information on the nature of the proposed business or activity at this site)

Type of Facility / Operation (select all that apply & complete all appropriate sections)

- | | | | | |
|--|-----------------------------------|--|---|---|
| <input checked="" type="checkbox"/> Landfill | <input type="checkbox"/> Transfer | <input checked="" type="checkbox"/> Processing | <input type="checkbox"/> Thermal Treatment Facility | <input checked="" type="checkbox"/> Household Hazardous Waste |
| <input type="checkbox"/> Closed / Decommissioned | | <input type="checkbox"/> Composting | | |

Days and Hours of Operation	Population Served by this Site (#)	Service Area	Total Area of Site (hectares)
8 am - 5 pm Monday - Saturday	3,300	Reg. Municipality of SmallCity	56.00

Monitoring (select all that apply)

- | | | | |
|---|---|---------------------------------------|--|
| <input checked="" type="checkbox"/> Groundwater | <input checked="" type="checkbox"/> Surface Water | <input type="checkbox"/> Landfill Gas | <input checked="" type="checkbox"/> Leachate |
|---|---|---------------------------------------|--|

None Other(specify):

Type(s) of Waste to be Accepted at this Site (select all that apply)

- | | | | |
|---|---|---|---|
| <input checked="" type="checkbox"/> Municipal Waste | <input checked="" type="checkbox"/> Hazardous Waste | <input checked="" type="checkbox"/> Liquid Industrial Waste | <input type="checkbox"/> Other Liquid Waste |
|---|---|---|---|

Municipal Waste Categories to be Accepted at this Site (select all that apply)

- | | | | |
|--|---|---------------------------------------|--|
| <input checked="" type="checkbox"/> All Categories | <input type="checkbox"/> Domestic Sources | <input type="checkbox"/> IC&I Sources | <input type="checkbox"/> Source Separated Organics |
|--|---|---------------------------------------|--|

Tires Leaf & Yard Waste

- | | | | |
|--|-------------------------------------|---|--|
| <input type="checkbox"/> Contaminated Soil | <input type="checkbox"/> Wood Waste | <input type="checkbox"/> Blue Box Materials | <input type="checkbox"/> Other(specify): |
|--|-------------------------------------|---|--|

Other Liquid Waste Categories to be Accepted at this Site (select all that apply)

- | | | | |
|---|--|--|--|
| <input type="checkbox"/> Processed Organics | <input type="checkbox"/> Waste from Food Processing / Preparation Operations | <input type="checkbox"/> Hauled Sewage | <input type="checkbox"/> Other(specify): |
|---|--|--|--|

Hazardous / Liquid Industrial Waste Types to be Accepted at this Site Select All Waste Classes Clear All Waste Class Selections

| Class Code |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Select | 145 | Select |
| Select | 251 | Select |
| Select | 331 | Select |
| Select | 112 | Select |
| Select | 212 | Select |
| Select | | Select |

4.2 Other Approvals for Facility – Please attach a separate list if more space is required

Separate list attached? Yes No

List all other environmental approvals/permits applied for related to this project or received in relation to this project under the *Environmental Protection Act* (discharges to air, waste management, etc.) and the *Ontario Water Resources Act* (water and sewage works).

Approval Type	Approval Number (if approval issued)	Approval or Application Date (yyyy/mm/dd)	Approval Type	Approval Number (if approval issued)	Approval or Application Date (yyyy/mm/dd)

4.3 Waste Transfer and/or Processing / Composting – Complete this information if waste transfer and/or processing take place at this facility.

Liquid Waste								
Hazardous	Liquid Industrial	Other Liquid Waste	Maximum Residual for Final Disposal (m ³)					
			Daily	Hazardous	Annually	Liquid Industrial	Daily	Annually
2.05	2.05		1.00	10.00		1.00	10.00	
Solid Waste								
Maximum Storage Capacity (tonnes)			Maximum Residual for Final Disposal (tonnes)					
Hazardous		Non-Hazardous		Daily	Hazardous	Annually	Non-Hazardous	Annually
1.00		100.00		1.00	100.00		10.00	3,500.00
Maximum Amount of Waste to be Received Daily								
Liquid (m ³)			Solid (tonnes)					
Hazardous		Liquid Industrial		Other Liquid Waste		Hazardous	Non-Hazardous	Non-Hazardous
1.00		1.00				1.00		50.00
Design Capacity								
Requires Fundamental Design Review?								
Hazardous waste or liquid industrial waste			<input checked="" type="checkbox"/> ≤ 100 tonnes per day	<input type="checkbox"/> > 100 tonnes per day	<input type="checkbox"/>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Waste other than hazardous waste and liquid industrial waste			<input checked="" type="checkbox"/> ≤ 100 tonnes per day	<input type="checkbox"/> > 100 tonnes per day	<input type="checkbox"/>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	

 **4.4 Thermal Treatment Facility – Complete this information if thermal treatment takes place at this facility**

You are not required to complete section 4.3.			Liquid Waste						
Maximum Storage Capacity (m^3)			Maximum Residual for Final Disposal (m^3)						
Hazardous	Liquid Industrial	Other Liquid Waste	Daily	Hazardous	Liquid Industrial	Daily	Other Liquid Waste	Annually	Annually
Solid Waste									
Maximum Storage Capacity (tonnes)			Maximum Residual for Final Disposal (tonnes)						
Hazardous	Non-Hazardous		Daily	Hazardous	Non-Hazardous		Daily	Annually	Annually
Maximum Amount of Waste to be Received Daily									
Liquid (m^3)			Solid (tonnes)						
Hazardous	Liquid Industrial	Other Liquid Waste	Hazardous	Non-Hazardous					
Maximum Daily Feed Rate (tonnes/ m^3)									
Hazardous Waste (tonnes)		Non-Hazardous Waste (tonnes)		Liquid Industrial Waste (m^3)		Other Liquid Waste (m^3)			
Design Capacity									
Requires Fundamental Design Review?									
Hazardous waste or liquid industrial waste			<input type="checkbox"/> \leq 100 tonnes per day <input type="checkbox"/> > 100 tonnes per day			<input type="checkbox"/> Yes <input type="checkbox"/> No			
Waste other than hazardous waste and liquid industrial waste			<input type="checkbox"/> \leq 100 tonnes per day <input type="checkbox"/> > 100 tonnes per day			<input type="checkbox"/> Yes <input type="checkbox"/> No			

 **4.5 Landfill Site – Complete this information if this facility operates as a landfill site**

Maximum Landfilling Capacity (m^3)									
Hazardous Waste	Non-Hazardous Waste	Liquid Industrial Waste	Other Liquid Waste						
0.00	99,380.00	0.00							
Maximum Amount of Waste to be Received									
Hazardous Waste (tonnes)		Non-Hazardous Waste (tonnes)		Liquid Industrial Waste (m^3)		Other Liquid Waste (m^3)			
Daily	Annually	Daily	Annually	Daily	Annually	Daily	Annually		
0.00	0.00	8,000.00		0.00	0.00				
Landfill Information									
Area to be Landfilled (hectares)	Estimated Date of Closure (y/m/d)	Control Types (select all that apply)							
2.00	2021/12/31	<input type="checkbox"/> Leachate Collection <input type="checkbox"/> Landfill Gas Collection <input type="checkbox"/> None <input checked="" type="checkbox"/> Other (describe): none							
Design Capacity									
Requires Fundamental Design Review or Hydrogeological Assessment?									
Hazardous waste or liquid industrial waste								<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Waste referred to in item 15 Schedule 4, O. Reg. 363 (uncontaminated tree stumps, leaves, branches, concrete and rocks)								<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Waste other than hazardous waste and liquid industrial waste, other than site referred to in item 15, schedule 4, O. Reg. 363									
<input type="checkbox"/> \leq 40,000 m^3 <input checked="" type="checkbox"/> > 40,000 m^3 \leq 3 million m^3 <input type="checkbox"/> > 3 million m^3								<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Section 5: Regulatory Requirements

5.1 Environmental Assessment Act (EAA) Requirements

Are the works for which this proposal is made subject to (or exempted from) the requirements of the EAA? Yes No

If "Yes," please check one of the following

The works for which this application is made are exempt from the requirements of the EAA under:

Section _____ of Ontario Regulation No. _____ or

Declaration/Exemption Order Number _____

If Regulation, Declaration Order or Exemption Order does not refer directly to this facility, state in a covering letter or other document why it does apply to this facility – Please provide supporting information

The works for which this application is made have fulfilled all of the requirements of the EAA through the completion of the requirements of a Class EA process:

Name of Class EA: _____

Schedule/Group/Category (if applicable): _____

If applicable, please submit a copy of the completion documents.

Were Part II Order requests received? Yes No *If Yes, please submit a copy of the Minister's decision letter.*

The works for which this application is made have fulfilled all of the requirements for the EAA through:

Completion of an Environmental Screening Process pursuant to O. Reg. 101/07 of the EAA.

*Please submit the Statement of Completion, and indicate if any Elevation Request(s) were received.
If Elevation Request(s) were received, please submit a copy of the Director's decision letter.*

Completion of an Environmental Assessment

Please submit a copy of the signed Notice of Approval.

5.2 Hearing under the Environmental Protection Act

Is this application subject to a requirement for a mandatory hearing under s.30 of the Environmental Protection Act?

Yes No

5.3 Environmental Bill of Rights (EBR) Requirements

Is this a proposal for a prescribed instrument under EBR? Yes No

If "Yes", is this proposal exempted from EBR requirements? Yes No

If "Yes," please check one of the following

This proposal has been considered in a substantially equivalent process or by a decision of a tribunal. *Please provide supporting information*

This proposal is for an amendment to or revocation of an existing Certificate of Approval that is not environmentally significant.
Please provide supporting information

This proposal is for an emergency situation. *Please provide supporting information*

This proposal has been subject to or exempted from EAA Requirements. *Please provide supporting information*

5.4 Additional Public Consultation/Notification

Has any additional public consultation / notification related to the project is in the process of being completed or has previously been completed (such as public hearings or notification of First Nations)

Yes If "Yes",

1) describe the public consultation / notification below:

No 2) attach a separate list describing each of these consultation activities, the results achieved, and planned future consultation activities.

[Attachment 3: Environmental Assessment Screening Report](#)

[Attachment 4: Summary of Public Consultation](#)

Section 6: Supporting Information

 **6.1 Supporting Information Checklist** - This is a list of all supporting information to this application and is subject to the FOIPPA and EBR.

Mandatory	Attachment	Attached	Reference	Confidential* (✓)
	Proof of Legal Name of Applicant	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
	Copy of NEPDA Permit	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
	Copy of Municipal Planning Approval (ORMCA)	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
★	Reference Plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Attachment 1 - Legal survey	<input type="checkbox"/>
	Name, Address and Phone Number of the Operating Authority	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
	Name, Address and consent of land/site owner for the installation/construction and operation of the works/facility	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
★ Yes	Verification of EBR Public Participation Exception	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Attachment 3 - Environmental Screening Report	<input type="checkbox"/>
★	Record of Public Consultation Report	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Attachment 4	<input type="checkbox"/>
	Zoning Confirmation from the Municipality	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
★ Yes	Site Plan/Location Map with Geo-referencing point(s) identified	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Attachment 5	<input type="checkbox"/>
★ Yes	Design and Operations Report	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Attachment 5	<input type="checkbox"/>
	Drainage Study	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
★ Yes	Hydrogeological Assessment Report	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Attachment 6	<input type="checkbox"/>
	Waste Comprehensive Requirements 1. Engineers Report 2. Declarations	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
★ Yes	Application Fee	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
	Financial Assurance/ Financial Assurance Estimates	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
★ Yes	A copy of this application has been sent to the local district office	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
	A copy of this application has been sent to the local municipality	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/>
★ Yes	Record of EA Process: 1. Class EA Completion documents, or 2. Environmental Screening Process- Statement of Completion, or 3. Individual EA – Notice of Approval.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Attachment 3 - Environmental Screening Report	<input type="checkbox"/>
Other Attachments				
Title	Reference			Confidential* (✓)
				<input type="checkbox"/>
Are you attaching an additional list of attachments? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If there is not enough space to list all of the attachments included in this application package, please include an additional listing of these attachments.		<input type="checkbox"/>

*Please note: the release of information contained in application forms and documentation submitted in support of applications for approval is subject to the provisions of the *Freedom of Information and Protection of Privacy Act*. This Act defines what may and may not be disclosed to the public, and is used to assess all requests for information contained in the documents on file with an application for approval. The information submitted with an application for approval may also be subject to the *Environmental Bill of Rights*. In those situations, the application and the associated non-confidential supporting documentation is made available for review by members of the public. The applicants should therefore identify all documents as noted above which are to be considered confidential and must provide detailed evidence in support of this claim. This evidence will be one of the factors the ministry would consider when making a decision regarding disclosure of specific documents on file.

For Office Use Only			
Reference Number	Payment Received	Date (y/m/d)	Initials
	\$		

✓ Payment Information: Application for a Provisional Certificate of Approval for a Waste Disposal Site

Please Note:

1. If you are completing this form by hand, you must attach a copy of the form titled "Costs for EPA s.27 (Waste Management) Applications - Supplement to Application for Approval" (PIBS 4186). You do not need to attach the supplemental form if you are filling in this form electronically.
2. If you are completing this form electronically, the fees for this application have been calculated based on the information you have provided. The Ministry may require additional information during the review of your application that could impact the total fee required.
3. All fees should be paid in Canadian funds, payable to the Ontario Minister of Finance.
4. Credit card payments are accepted for payments under \$10,000 only.
5. If you are paying by certified cheque or money order, please staple your payment to this page.
6. Do not include this page in the copies of your application that are being provided to the local MOE Office or the local municipality(s).
7. The information collected in this section of the form is considered confidential and will only be used to process your application fee.

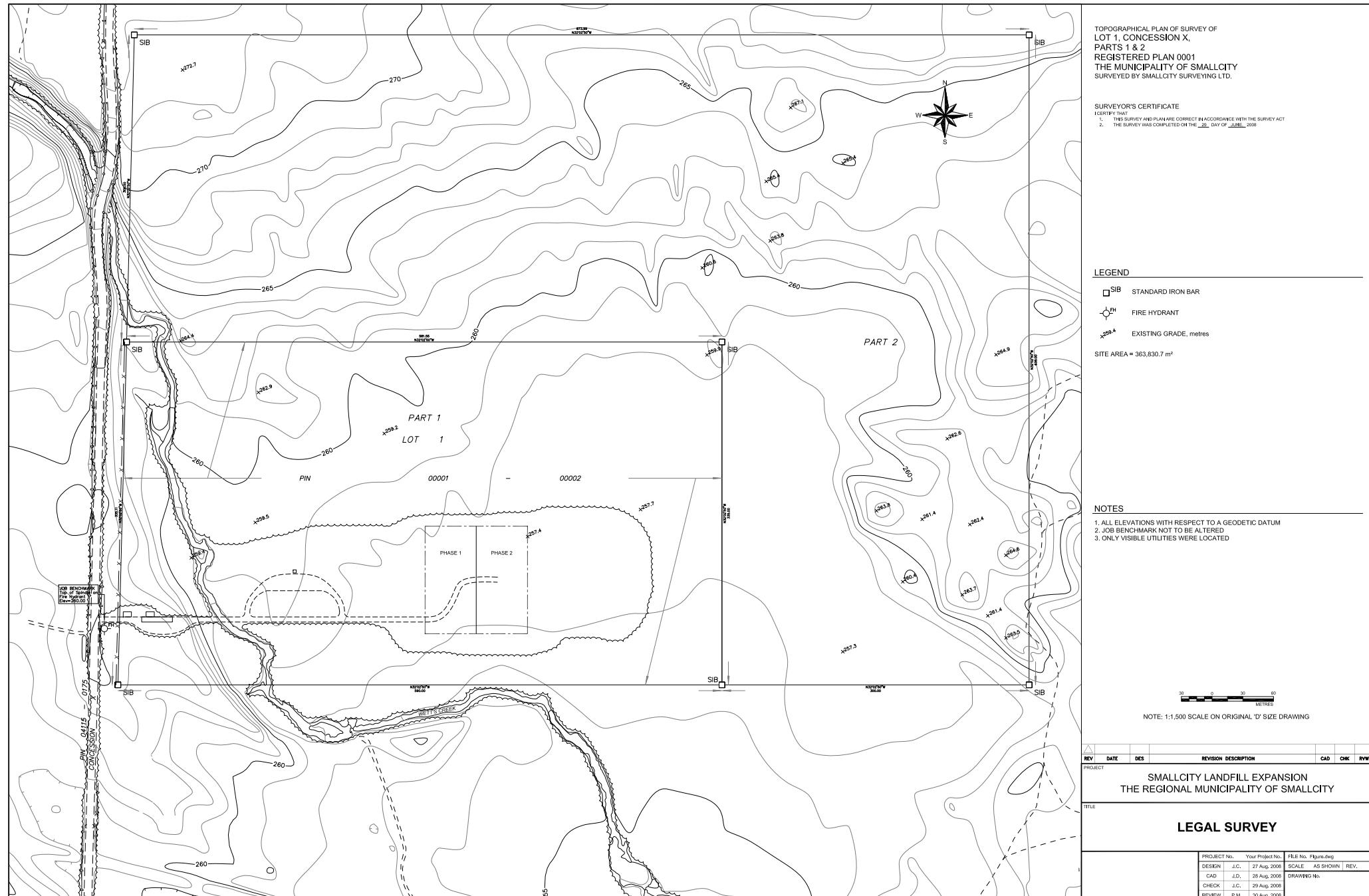
Amount Enclosed	Method of Payment		
\$ 22,700.00	<input type="checkbox"/> Certified Cheque	<input checked="" type="checkbox"/> Money Order	<input type="checkbox"/> Journal Entry
	<input type="checkbox"/> Visa	<input type="checkbox"/> MasterCard	<input type="checkbox"/> American Express

Credit Card Information (if paying by VISA, MasterCard or American Express)

Name on Card (please print)	Credit Card Number	Expiry Date (mm/yyyy)
[Redacted]	[Redacted]	[Redacted]
Cardholder Signature	Date (yyyy/mm/dd)	
[Redacted]	[Redacted]	

If paying by certified cheque or money order, please attach it here.

ATTACHMENT 1
LEGAL SURVEY



ATTACHMENT 2

**COPY OF PROVISIONAL CERTIFICATE OF APPROVAL AND
AMENDMENTS**



Ministry
of the
Environment
Ontario

Provisional Certificate No. G000001

PROVISIONAL CERTIFICATE OF APPROVAL WASTE DISPOSAL SITE

Under the Environmental Protection Act, 1971 and the regulations and subject to the limitations thereof, this Provisional Certificate is issued to:

1234 Cul-de-Sac Road
SmallCity, Ontario
A1B 2C3

for the use and operation of a 1.1 hectare (2.7 acres) waste disposal (landfilling) site within a total area of 19.6 hectares (48.4 acres).

All in accordance with the following plans and specifications:

1. Application and Supporting Information
2. Report prepared by ENG Consulting Incorporated, entitled "SmallCity Report on Refuse Disposal," dated February 1983.

Located: Lot 1, Concession X, Parts 1 & 2
SmallCity, Ontario
A1B 2C3

which includes the use of the site only for the disposal of the following categories of waste (NOTE: Use of the site for additional categories of wastes requires a new application and amendments to the Provisional Certificate of Approval) Domestic, Industrial, Commercial and Institutional wastes.

and subject to the following conditions:

1. No operation shall be carried out at the site after sixty days from this condition becoming enforceable unless this Certificate including the reasons for this condition has been registered by the applicant as an instrument in the appropriate Land Registry Office against title to the site and a duplicated registered copy thereof has been returned by the applicant to the Director.
2. The use and operation of the landfilling site is to be generally in accordance with the report "SmallCity, Report on Refuse Disposal" prepared by ENG Consulting Inc., dated February 1983, with the exception that only areas defined in the report be used for waste disposal.

Dated this 1st day of January, 19 83.

A.P. MacKenzie
Director, Section 19
The Environmental Protection Act, 1971

TO: The Regional Municipality of SmallCity
1234 Cul-de-Sac Road
SmallCity, Ontario
A1B 2C3

You are hereby notified that the terms and conditions of Provisional Certificate of Approval No. G 000001 are amended by the addition of the following conditions:

3. The use and operation of the recycling collection facility and the household hazardous waste facility is to be generally in accordance with the report "SmallCity, Refuse Disposal and Diversion" prepared by ENG Consulting Inc., dated October 1989.

The reason for this amendment is to ensure that the recycling collection facility and household hazardous waste facility are being operated in accordance with supporting documentation submitted therewith and not on any basis which the Director has not been asked to consider.

You may by written notice served upon me and the Environmental Appeal Board within 15 days after receipt of this Notice, require a hearing by the Board. Section 142 of the Environmental Protection Act, R.S.O. 1990 c. E-19, provides that the Notice requiring the hearing shall state:

- 1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;**
- 2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.**

In addition to these legal requirements, the Notice should also include:

- 3. The name of the appellant;**
- 4. The address of the appellant;**
- 5. The Certificate of Approval number;**
- 6. The date of the Certificate of Approval;**
- 7. The name of the Director;**
- 8. The municipality within which the waste disposal site is located;**

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary,
Environmental Appeal Board,
112 St. Clair Avenue West,
Suite 502,
Toronto, Ontario M4V 1N3

AND

The Director,
Section 39, Environmental Protection Act,
Ministry of the Environment and Energy,
250 Davisville Avenue, 3rd Floor,
Toronto, Ontario M4S 1H2

DATED AT TORONTO this 1st day of January, 1990.

THIS IS A TRUE COPY OF
THE ORIGINAL CERTIFICATE
SIGNED BY

A. Proover, P. ENG.

MAILED ON

BY

ATTACHMENT 3

ENVIRONMENTAL ASSESSMENT SCREENING REPORT

Please Note:

This section has been included as a placeholder for the Environmental Assessment Screening Report. A copy of the Environmental Screening Report is not a mandatory requirement of a Part V application submission; however it assists in the timely review of applications if submitted.

Environmental Assessment Screening Report

SMALLCITY LANDFILL SITE EXPANSION

Submitted to:

The Regional Municipality of SmallCity
1234 Cul-de-Sac Road
SmallCity, Ontario
A1B 2C3

DISTRIBUTION:

- 1 copy - Ministry of the Environment, EAAB
- 2 copies - Ministry of the Environment, Local District Office
- 1 copy - Public Liaison Committee
- 2 copies - The Regional Municipality of SmallCity, Ontario
- 2 copies - ENG Consulting, Inc.

April 2007

ATTACHMENT 4

SUMMARY OF PUBLIC CONSULTATION

RECORD OF PUBLIC AND GOVERNMENT AGENCY CONSULTATION

PROJECT: SmallCity Landfill Expansion, Regional Municipality of SmallCity (SmallCity), Ontario

DATE: January 21st, 2008

LOCATION: SmallCity, Council Chambers

ATTENDEES: Public: 6 citizens of SmallCity

Interest Groups: Aggregate Suppliers Co-Op (2 members)
Citizens Against the Dump Expansion (2 members)

SmallCity Staff: B. Good, Chair, SmallCity Waste Management Committee
L. Tellya, Mayor, SmallCity
A. Glegate, Director, SmallCity Public Works Department

ENG Consulting Inc.: Jordan McGrady, P.Eng., Senior Environmental Engineer

NOTIFICATION:

- A Notice by first class mail was sent to all property owners and tenants within a 1 kilometre radius of Parts 1 and 2 of Lot 1, Concession X, SmallCity, Ontario, advising them of the proposed undertaking and the Consultation Event scheduled for January 21st, 2008.
- A Notice of Public Meeting was placed in the SmallCity Examiner, Surrounding Township Record and the NoOneReads Monthly publication on December 17th, 2007, and January 7th and January 14th, 2008.
- Copies of all Public Notices are included in Appendix A.

FORMAT:

The Consultation Event was held from 6:00 pm to 9:00 pm. Display panels illustrating the proposed landfill expansion were available for review by all attendees during this period. Representatives from ENG Consulting Inc. and the Regional Municipality of SmallCity, including members of the SmallCity Waste Management Committee and SmallCity Public Works Department, were available to discuss the project from 6:30 pm to 8:30 pm and at the conclusion of the event. A formal power point presentation was delivered from 7:00 – 7:30 pm by the representative of ENG Consulting Inc., with an open question period following.

PROCEEDINGS:

Some residents in attendance questioned the need for additional landfill capacity. They were specifically concerned that the proposed landfill expansion would deter efforts within SmallCity to increase the amount of waste being diverted from the landfill. Bee Good, SmallCity Waste Management Committee explained that the proposed landfill expansion is projected to serve SmallCity for the next 10 years, based on current waste management practices, but that the City would be working to increase waste diversion efforts and to extend the life of the Site as much as possible.

Representatives of the Aggregate Suppliers Co-Op enquired about the type of cover to be used for the expansion and whether these materials would be sourced locally. Al Gregate, SmallCity Director of Public Works, indicated that the local aggregate suppliers would be invited to bid on any contracts to supply the Site with any required cover material.

There was a discussion about the operating hours of the landfill, specifically the number of household hazardous waste days held at the landfill. Bee Good addressed this by indicating that there was no plan to increase the number of household hazardous waste days as part of the proposed landfill expansion, but that the City would look into whether this would be something residents of SmallCity would be interested in.

Residents of the nearest residences to the south of the Site expressed concerns about a potential for increased odours as a result of the additional waste being placed at the landfill. A procedure for recording and managing any odour or other complaints that might result from the operation of the facility was discussed and agreed upon. ENG Consulting Inc. also agreed to hold an annual Consultation Event to advise the local residents about the facility operations and to hear any additional concerns that the residents may have.

RESOURCES:

Hardcopies of the power point presentation were available to all attendees. Copies of the draft Design and Operations Report for the SmallCity Landfill expansion were available for those wishing to take a copy. All attendees were encouraged to complete a Comment Sheet.

The display panels and power point presentation are shown in Appendix B.

COMMENT SHEETS:

A total of six comment sheets were completed and left at the Consultation Event or returned by mail or fax to ENG Consulting Inc. before February 14, 2008. These comment sheets are included in Appendix C.

The table below summarizes the level of support for the specific questions on the comment sheet.

	Yes	No	Uncertain
Do you support the development of the SmallCity Landfill expansion as proposed?	50%	30%	20%
Do you have a specific concern about the operations of the proposed undertaking?	30%	50%	20%

The following additional comments were received:

- Comment 1: I am concerned that there will be odours from the facility and that waste trucks will be a danger to children waiting for school buses along Concession X.
- Comment 2: I am afraid the expanded landfill will be used to dispose of wastes shipped from SouthernCity, Ontario.
- Comment 3: Recycling and composting should be encouraged in SmallCity, rather than continuing to landfill so much waste. A landfill expansion will only encourage less waste diversion.
- Comment 4: I like the proposed landfill design, but I think it should have been much larger. What is the long term waste management strategy for SmallCity once this expansion is full?

APPENDIX A

Public Notices

Regional Municipality of SmallCity
1234 Cul-de-Sac Road
SmallCity, Ontario
A1B 2C3

January 10, 2008

ADDRESS

ADDRESS

ADDRESS

Dear Owner/Occupant:

**Notice of an Application for a Certificate of Approval for the SmallCity
Landfill Expansion**

Please be advised that Regional Municipality of SmallCity will be applying to the Ontario Ministry of the Environment for a Certificate of Approval amendment for the SmallCity Landfill Expansion. The proposed expansion will increase the current landfill area to a total of 50 hectares and a maximum estimate site landfilling capacity of 99,380 cubic metres. The service area and types of waste received at the SmallCity Landfill will remain the same as per current practices.

ENG Consulting Inc. provides technical support in designing the SmallCity Landfill Expansion. Should the application be approved by the Ministry of the Environment the construction would be expected to begin on March 1, 2010. Estimated date for the start of operation would be June 1, 2011. It is predicted that the proposed expansion will allow for the receipt of 2,400 tonnes of waste each year and extend the landfill operating life for an additional 10 years. The SmallCity Landfill will accept waste for landfilling within the following operating hours:

Tuesday to Saturday 08:00 to 17:00

A Consultation Event will be held on January 21, 2008 in the Council Chambers at the Regional Municipality of SmallCity from 6:00 pm – 9:00 pm. All interested members of the public are encouraged to attend. Representatives of interested groups, ENG Consulting Inc., the Chair of the SmallCity Waste Management Committee, the Director of SmallCity Public Works Department and the Mayor of Regional Municipality of SmallCity will be available to discuss the project during this time.

Written comments can be sent within 30 days of receipt of this Notice to:

Director Section 27, EPA
Environmental Assessment and
Approvals Branch
Ministry of the Environment
2 St. Clair Avenue, Floor 12A
Toronto, Ontario M4V 1L5

Mr. Jordan McGrady,
Senior Environmental Engineer
ENG Consulting Inc.
111 One Way Drive
SmallCity, Ontario Z9Y 8W7

If you have any questions regarding this notice, please do not hesitate to contact Jordan McGrady of ENG Consulting Inc. at (897) 666-2222.

APPENDIX B

Display Boards/Presentation

Please Note:

This section has been included as a placeholder for display boards / presentations relating to this project. A copy of any display boards / presentations used during public consultation is not a mandatory requirement of a Part V application submission; however it supports the record of public consultation and assists in the timely review of applications if submitted.

APPENDIX C

Comment Sheets

Please Note:

This section has been included as a placeholder for any comment sheets received during the public consultation process. A copy of these comment sheets is not a mandatory requirement of a Part V application submission; however it supports the record of public consultation and assists in the timely review of applications if submitted.

ATTACHMENT 5
DESIGN AND OPERATIONS REPORT

**DESIGN AND OPERATIONS REPORT
SMALLCITY LANDFILL SITE EXPANSION**

Prepared by:

ENG Consulting Ltd.
111 One Way Drive
SmallCity, Ontario

Submitted to:

The Regional Municipality of SmallCity
1234 Cul-de-Sac Road
SmallCity, Ontario
A1B 2C3

DISTRIBUTION:

- 1 copy - Ontario Ministry of the Environment, EAAB, Toronto, Ontario
- 2 copies - Ontario Ministry of the Environment, SmallCity District Office
- 1 copy - Public Liaison Committee, SmallCity, Ontario
- 2 copies - The Regional Municipality of SmallCity, Ontario
- 2 copies - ENG Consulting Inc., Highland, Ontario

November 2008

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1.0 INTRODUCTION

This report presents the proposed Design and Operations Plan for the SmallCity Landfill (Site) in the Regional Municipality of SmallCity (City) in central Ontario. The Site is located on Parts 1 and 2 of Lot 1, Concession X, SmallCity, Ontario. The Site location is provided on the Key Plan, Figure 1.

1.1 Background

The landfill is owned and operated by the City and currently operates under Provisional Certificate of Approval (C of A) No. G 000001 issued by the Ontario Ministry of the Environment (MOE). The C of A was amended on January 1, 1990 to allow the City to operate a municipal recycling collection facility and to allow the establishment and operation of a household hazardous waste transfer facility at the Site.

The original Site property occupied approximately 19.6 hectares (ha), which includes the existing 1.1 ha approved waste footprint. In 2007, in anticipation of a future landfill expansion, the City purchased an additional 36.4 ha to the north and east of the original Site, making the total Site property 56 ha in area. It is intended that this property will be registered on title in the near future, and the C of A will be amended to include the additional 36.4 ha property for use as a contaminant attenuation zone as part of the application to amend the C of A to expand the Site.

The Site receives solid, non-hazardous municipal waste generated within the geographic boundaries of the City. Figure 2 depicts the existing conditions at the Site including the total land area currently owned by the City, the currently approved waste footprint, the municipal recycling collection facility and the household hazardous waste (HHW) transfer facility.

Under the current Site approval, the City has determined that the remaining operating life for the landfill is estimated to be until 2011. In the spring of 2006, the City began public consultation and retained ENG Consulting Inc. to help identify a preferred landfill expansion alternative for the landfill thereby extending its operational life.

1.2 Environmental Assessment Screening Process

Under Section 13 of Ontario Regulation 101/07, a landfill expansion that increases capacity by more than 40,000 cubic metres but less than 100,000 cubic metres is exempt from Part II of the *Environmental Assessment Act* (EAA), subject to fulfilling the requirements of the Environmental Screening Process for Waste Management Projects (Screening EA). Since the proposed expansion of the SmallCity Landfill is 49,500 cubic

metres, the completion of a Screening EA prior to submission of the Section 27 Ontario *Environmental Protection Act* (EPA) amendment application was required.

The Environmental Screening Process undertaken by the City included completion of the following:

- Preparation and publication of Notice of Commencement of the SmallCity Landfill expansion project;
- Identification of problems and opportunities and development of project description;
- Application of MOE screening criteria checklist to identify potential environmental effects as a result of increasing waste capacity at the Site;
- Development of documentation describing potential environmental effects, concerns and issues to be addressed by the Environmental Screening Process;
- Consultation with interested stakeholders, including landfill neighbours, Aboriginal peoples and relevant government agencies through a series of meetings, to identify additional issues and concerns;
- Completion of studies and assessments of potential environmental effects;
- Development of impact management measures;
- Follow-up consultation with interested stakeholders, including landfill neighbours, Aboriginal peoples and relevant government agencies through a series of information sessions and meetings, to address previously identified issues and concerns, and identify additional issues and concerns;
- Preparation of an Environmental Screening Report (ENG Consulting, Inc., 2007) and publication of Notice of Completion, followed by 60 day Review Period; and
- Submission of Statement of Completion to the MOE.

The City did not receive any requests for elevation of the project to an individual environmental assessment (EA) during the Environmental Screening Process. The 60 day review period was completed on July 1, 2007. A Statement of Completion was submitted to the MOE on August 10, 2007. The results of the Environmental Screening Process were incorporated into the Hydrogeology, Hydrology and Geotechnical Study Report (Water Rocks, Inc., 2007), the Air and Noise Impact Assessment (No Ozone, Inc., 2007), and the Design and Operations Report submitted as part of this application.

In addition to completion of the Environmental Screening Process, the proposed expansion of the SmallCity Landfill requires approval under the EPA. The City has completed additional work to satisfy both the outcome of the Environmental Screening Process and the requirements of the EPA. This report comprises the design and operations information which is required to satisfy these elements of the EPA approval.

1.3 Purpose and Organization of Report

This document is referred to as the Design and Operations (D&O) Report. The purpose of this report is to support the Section 27 EPA application to expand the SmallCity Landfill footprint from the original 1.1 ha to 2.0 ha and increase the approved total waste disposal volume from 49,900 cubic metres to 99,400 cubic metres. The additional air space to be gained under this proposed expansion is approximately 49,500 cubic metres, which would provide for the landfilling of an additional 24,000 tonnes of waste by the City. In addition, it is the intent of the City to add an additional 36.4 ha to the north and east of the landfill footprint for use as an additional contaminant attenuation zone as part of this expansion.

The D&O components specifically described in this document include the following:

- zoning and surrounding land uses;
- grading plans and proposed final landfill geometry;
- existing and proposed Site entrance facilities and on-Site roads;
- visual and noise screening;
- diversion facilities;
- leachate management;
- landfill gas and odour management;
- surface water management;
- Site development phasing;
- Site operations, inspection and maintenance;
- Site monitoring programs and trigger mechanisms; and
- contingency measures.

All D&O components described in this report have been prepared to meet the regulatory requirements described in the MOE guidance document "*Landfill Standards: A Guideline on the Regulatory and Approval Requirements for New or Expanding Landfilling Sites*" (MOE, May 1998) and the associated Ontario Regulation Landfilling Sites (Reg. 232/98). Elements of this document have also been developed to address the issues and concerns raised during the completion of the EA Environmental Screening Process, the details of which are summarized the EA Screening Report (ENG Consulting, Inc., 2007).

1.4 History of Facility

Starting in 1970, the Site served as a rural dump for local residents. In 1985, Provisional Certificate of Approval (C of A No. G 000001) was issued by the MOE to the Regional Municipality of SmallCity for the disposal of solid, non-hazardous municipal waste and non-hazardous impacted soil from within the City. The C of A was subsequently amended for the operation of a municipal recycling collection facility and a HHW transfer facility at the Site. The table below provides a summary of the C of A and subsequent amendments for this Site.

Certificate of Approval/ Amendment Number	Date of Issue	Description
C of A No. G 000001	January 1, 1985	C of A for existing landfill facility operating as rural dump since 1970.
C of A No. G 000001, Amendment No. 1	January 1, 1990	Amendment allowing operation of recycling collection facility and HHW transfer facility on the Site.

Annual groundwater and surface water monitoring was initiated in 1987. The monitoring program has evolved into a comprehensive monitoring program with monitoring reports submitted to the MOE on an annual basis.

2.0 EXISTING WASTE DISPOSAL SITE

2.1 Site Location and Legal Description

The Site is located on Parts 1 and 2 of Lot 1, Concession X, SmallCity, Ontario. The location is provided on the Key Plan, Figure 1. The latest legal survey plan for the Site was registered on June 29, 2008 as Registered Plan 0001. Access to the Site is off Concession X, between County Road 1 and County Road 2.

2.2 Planned Land Use

2.2.1 Overview

According to the Regional Municipality of SmallCity Official Plan, the Site is designated as a Solid, Non-Hazardous Waste Disposal Site. The existing adjacent lands are predominantly used for agricultural purposes with some houses to the northwest and southwest, across Concession X from the Site property.

Figure 3 summarizes the current zoning for the area surrounding the Site. The lands owned by SmallCity are zoned as Waste Management Facility/Landfill under the current Zoning By-law. The lands to the north, west, south and east of the Site are zoned as Rural. To the northwest and southwest there are areas zoned as Residential – Serviced.

2.3 Physical Site Setting

2.3.1 Geology and Surface Drainage

The Regional Municipality of SmallCity is located in the Central Ontario Region.

The Site is located within the Bubbling River drainage basin. The drainage basin has an overall drainage area of approximately 10,000 ha. Within the Site, the ground surface generally slopes to the south, towards Wett's Creek, a tributary of the Bubbling River which is located 5 kilometres (km) to the southeast.

Relief within the landfill study area is fairly flat. The overburden consists primarily of fine sand to sandy silt of a thickness ranging, in depth in the vicinity of the Site from 10 metres (m) at MW1, at the southern Site boundary, to 30 m at MW20, northeast of the landfill. Finer-grained (silts and clays) surficial soils have been observed over the western portion of the Site west of the existing waste footprint and in the vicinity of Wett's Creek.

There are no formal surface drainage features associated with the Site. Stormwater either infiltrates into the waste mound or runs off as sheet flow from covered areas of the waste mound. Any runoff generated infiltrates into the native sandy soils directly adjacent to the waste disposal areas. The waste footprint is separated from Wett's Creek by dense vegetation.

The regional geology consists of early Precambrian stone in the uplands, overlain by middle Precambrian shales of the Older Formation over most of the area. The bedrock in the area of the Site consists of Older Formation shale. The depth to bedrock was established from a review of water well logs in the area of the Site, plus Site drilling results. The bedrock surface in the vicinity of the landfill slopes northeast.

A complete description of the regional and Site geology and surface drainage is provided in the Hydrogeology, Hydrology and Geotechnical Study Report (Water Rocks, Inc. 2007).

2.3.2 Hydrogeology

In the general area of the Site, groundwater flows in a southwest to northeast direction, generally following the bedrock surface in the vicinity of the landfill.

The physical hydrogeological setting of the Site can be summarized as follows:

- Based on historical data, the depth to the groundwater table in the vicinity of the landfill is generally greater than 2 m below ground surface;
- The vertical hydraulic gradients suggest that the majority of the Site is located within a transitional to groundwater discharge area with the exception of areas directly adjacent to Wett's Creek on the western portion of the property which are interpreted to be a recharge area;
- The interpreted direction of groundwater flow in the sandy, overburden in the vicinity of the Site is southwest to northeast across the Site;
- The horizontal hydraulic gradients in the shallow groundwater system flow in a direction roughly parallel to the interpreted direction of groundwater flow and are estimated to be 0.007 centimetres/centimetre (cm/cm);
- Based on the results of rising head tests, it is concluded that the sandy silt overburden deposits have a hydraulic conductivity of between 10^{-5} and 10^{-4} centimetres per second (cm/s);

- Based on the grain size correlations, the horizontal hydraulic conductivity of the fine sand deposits (which comprise the majority of the overburden materials in the area of the Site) range from approximately 10^{-3} to 10^{-2} cm/s; and
- The average linear groundwater velocity within the sand deposits near the Site is estimated to range from 6 to 60 m per year.

A complete description of the regional and Site hydrogeology is provided in the Hydrogeology, Hydrology and Geotechnical Study Report (Water Rocks, Inc. 2007).

2.4 Existing Site Design and Facilities

2.4.1 Existing Facilities

A gated entrance from Concession X at the west end of the Site presently serves as the only Site access point. The gate is locked after operating hours and monitored by security personnel. Access during operating hours is controlled by an attendant at the gate house. The gate house is in close proximity to the scales and scale house.

The gate house and scale house are both pre-fabricated steel construction with slab on grade foundations.

Internal roads are constructed and relocated, as necessary, to provide access to the active landfill area. The internal roads to the active fill area are constructed using various suitable waste materials, such as concrete, stones, boulders, bricks, and crushed glass overlain with gravel or some other permeable aggregate material. These temporary roads are maintained as necessary by landfill staff and filled over once no longer in use. The current approximate road network is illustrated in plan on Figure 2.

The recyclable waste collection area and HHW shed has been built to the west of the waste mound. A gravel arch access road has been constructed to facilitate drop off of recyclable materials and HHW to be diverted from the landfill. Stockpiles for tires, wood and brush, scrap metal, propane tanks and appliances, and the small HHW shed have been established to the north of the arch, while a number of roll-off bins have been placed to the south, to facilitate collection of recyclable items such as glass, plastic, aluminum cans and cardboard.

A minimum buffer width of 50 m is maintained around the west, north, east and south sides of the existing licensed waste disposal area. This exceeds the minimum 30 m buffer width required under Reg. 232/98.

2.4.2 Waste Quantities and Characteristics

The current service area for disposal at the Site is the geographical boundaries of the Regional Municipality of SmallCity. The Site receives solid, non-hazardous municipal waste. The maximum total amount of waste that may be received at the landfill for disposal is controlled by the Site's approved waste contour plan. The current approved landfill waste capacity is approximately 49,900 cubic metres, excluding final cover.

Based on the Site C of A, there is currently no maximum amount of waste that may be received at the Site on an annual basis. Based on recent weigh scale information, the Site accepts approximately 2,000 tonnes of waste per year.

The Site has separate stockpiles to divert wood and brush, scrap metal, appliances, propane tanks and tires. Several roll-off bins are also provided to divert other recyclables (glass, plastic, cans, paper/cardboard, etc.) from the landfill. An HHW shed is present on-Site for the collection and temporary storage of domestic quantities of HHW. No hazardous waste or liquid industrial waste is accepted for disposal at the Site.

Diversion, through the reuse and recycling of resources is a key activity in the ongoing management and preservation of disposal capacity at the Site. All recyclables collected within the City are taken to the recycling transfer station at the Site, from where they are transferred out of the City by a recycling contractor once the roll-off bins at the landfill become full. Based on recent weigh scale information, the following quantities of recyclable materials are collected at the Site on an annual basis: 10 tonnes of steel cans; 30 tonnes of plastic; 2 tonnes of aluminium; 250 tonnes of paper; and 150 tonnes of cardboard. In addition, an average quantity of approximately 50 tonnes of scrap metal is removed from the Site on an annual basis.

The stockpile of wood/brush is monitored and periodically the City will bring in a local contractor to chip the accumulated wood. The local contractor has a mobile Part V approval to process the wood chips. The chipped wood is then used on Site for alternative daily or interim cover material.

The stockpile of used tires is maintained such that there are never more than 750 tires on-Site at a given time. The tires accumulate until sufficient numbers are present on-Site and then the tires are removed for recycling.

2.4.3 Existing Leachate Management and Groundwater Protection System

Leachate generated from the landfill is managed through natural attenuation.

Recently, the City purchased an additional 36.4 ha of property to the north and east of the original Site property for use as a contaminant attenuation zone, in anticipation of the proposed landfill expansion. It is intended that the proposed amendment to the C of A will include the addition of this property as additional contaminant attenuation zone. As discussed in the Hydrogeology, Hydrology and Geotechnical Study Report (Water Rocks, Inc., 2007), the Site is currently in compliance with “*MOE Guideline B-7: Incorporation of the Reasonable Use Concept into MOEE Groundwater Management*” (MOE, 1994).

2.4.4 Existing Landfill Gas and Odour Management System

No active landfill gas collection system presently exists on-Site and there is no landfill gas monitoring program currently in place at the Site.

2.4.5 Existing Surface Water Management System

The regional surface water setting of the landfill is discussed in sub-section 2.3.1. There are currently no existing surface water control features at the Site. The land surrounding the Site is heavily vegetated, particularly to the south, between the landfill and Wett's Creek. Surface water in the vicinity of the landfill infiltrates the sandy surface soils immediately adjacent the landfill.

2.5 Summary of Current Environmental Performance

The results of past and on-going groundwater and surface water quality monitoring programs are described in detail in the Hydrogeology, Hydrology and Geotechnical Study Report. (Water Rocks, Inc., 2007).

Groundwater monitoring to date indicates that the landfill has not had a measurable impact on groundwater quality down-gradient (northeast) of the original Site (i.e., Part 1 of Lot 1, see Figure 3). As indicated in sub-section 2.4.3, the Site is currently interpreted to be operating in compliance with MOE Guideline B-7.

Surface water quality in 2007 at the various sampling stations included in the current monitoring program was, in general, consistent with historical trends observed in Wett's Creek over time. Based on the historical trends observed at the Site and the inferred direction of groundwater flow, Wett's Creek is believed to be located upstream of the landfill and unimpacted by landfilling activities.

Groundwater and surface water quality monitoring will continue at the Site, with the samples analyzed for appropriate parameters of concern and evaluated for potential impacts. This approach was outlined in the most recent annual landfill monitoring report. The MOE has agreed that this is the preferred approach for the Site.

3.0 DESCRIPTION OF LANDFILL EXPANSION

3.1 Overview of Expansion

The Environmental Screening Process described the City's undertaking as "*an expansion of the SmallCity Landfill to increase the approved disposal capacity of the Site, thereby extending its operational life*". The expansion option described in the Environmental Screening Report (ENG Consulting, Inc., 2007) as *Alternative 2* was selected as the preferred alternative for the undertaking.

The conceptual design of the Site, presented during the EA Screening Process as *Alternative 2*, is as follows:

- The east-west landfill length will be increased by 80 m by the expansion to the east of the existing waste mound; no change is proposed to the north-south width of the existing approved waste footprint;
- The expansion top of waste will remain consistent with the current approved top of waste elevation of 267 m above sea level (mASL);
- The landfill expansion will maintain the currently approved maximum 4:1 side slopes and a minimum slope at the crest of the landfill of 20:1 to promote surface drainage; and
- Besides removal of topsoil, the landfill will not require any excavation below the existing ground surface elevation.

Figure 4, Existing and Proposed Waste Contours, Sections and Phasing, depicts the proposed expansion geometry.

The expansion consists of extending the landfill footprint by 80 m to the east, which would increase the footprint by 0.9 ha. The total increase in air space as a result of the expansion is 49,500 cubic metres, excluding final cover.

The proposed expansion will result in a total landfill footprint of 2.0 ha, a minimum top deck slope of 5% (20 horizontal:1 vertical) (20H:1V) and maximum perimeter side slopes of 4H:1V. The total volume of the proposed expanded landfill, including the currently approved fill area, is 99,400 cubic metres, excluding the volume of final cover to be applied once the landfill has reached the proposed final waste contours. Detailed waste volume calculations are included in Appendix A.

The City does not propose any changes to the service area of the Site or the types of wastes received for disposal as part of the application for landfill expansion. The Site will continue to only accept solid, non-hazardous household, commercial and industrial waste.

There are no modifications proposed for the current Site entrance, scale location, drop-off and stockpile areas as part of the proposed expansion.

There is currently no leachate containment and collection system or stormwater management system for the Site. As indicated in the Hydrogeology, Hydrology and Geotechnical Study Report (Water Rocks, Inc., 2007), groundwater modelling of the proposed landfill expansion suggests that construction of additional control infrastructure is not required as a result of the proposed landfill expansion.

3.2 Site Buffer Zones

The proposed undertaking maintains the use of the on-Site buffer lands. The existing buffer areas will be maintained on the north, west and south sides of the existing landfill footprint which include a minimum width of 50 m along the south side of the landfill footprint and much greater than 50 m on the north and west sides (Figure 2). The buffer along the east side of the landfill following Site expansion will be greater than 50 m. This buffer width exceeds the minimum buffer width of 30 m required under Reg. 232/98.

4.0 ASSESSMENT OF POTENTIAL IMPACTS

4.1 Groundwater Assessment

Modelling of long term groundwater quality impacts for new or expanding landfill sites is required under Reg. 232/98. Typically, the modelling is conducted to demonstrate that the proposed design will meet the reasonable use requirements of MOE Guideline B-7.

A comprehensive description of the contaminant transport modelling that was carried out in consideration of the proposed expansion of the Site is provided in the Hydrogeology, Hydrology and Geotechnical Study Report (Water Rocks, Inc., 2007). As described in the Hydrogeology, Hydrology and Geotechnical Study Report, the Site is currently operating in compliance with MOE Guideline B-7.

The conceptual contaminant transport movement at the Site is toward the northeast through the sand overburden.

The results of the hydrogeologic/contaminant transport modelling are described in the Hydrogeology, Hydrology and Geotechnical Study Report (Water Rocks, Inc., 2007) accompanying this application. Based on these results, it is expected that the Site will continue to comply with MOE Guideline B-7 throughout the contaminating lifespan of the Site.

4.2 Surface Water Assessment

Under the proposed expansion, the Site waste footprint will occupy approximately 2.0 ha. The only surface water body present on the Site property is Wett's Creek, which runs from the northwest towards the southeast across the southwest corner of the Site property to the southwest of the approved waste footprint. The flow in Wett's Creek varies seasonally and is often negligible during dry times of the year.

Existing surface water environment conditions are described in the Hydrogeology, Hydrology and Geotechnical Study Report (Water Rocks, Inc., 2007). Existing topographic and drainage maps and air photos were used to characterize watersheds in the Site vicinity. A Site reconnaissance visit was undertaken on April 1, 2007.

Results from current and historic on-Site and off-Site surface water quality and flow monitoring programs were reviewed and used as a basis for characterizing existing surface water quantity and quality parameters. The existing surface water monitoring program at the landfill consists of two up-gradient and two down-gradient surface water

sampling stations located in Wett's Creek, which cuts across the southwest corner of the Site. Sampling has typically been done in the spring, summer and autumn each year.

Based on the results of the surface water quality and flow monitoring, the water quality in Wett's Creek does not appear to be impacted by the Site. The current and historic water quality also indicates that the Site is in compliance with the Provincial Waste Quality Objectives (PWQO).

Potential impacts to on-Site and off-Site surface waters are not anticipated. Although the landfill expansion is anticipated to locally increase runoff quantity from the waste disposal area, this potential effect will be mitigated through the application of vegetated final cover to be placed over the landfill as portions of the waste area reach capacity and are closed.

The proposed landfill expansion is not anticipated to cause any impact on Wett's Creek, as discussed in the Hydrogeology, Hydrology and Geotechnical Study Report (Water Rocks, Inc., 2007).

4.3 Noise Assessment

The noise assessment addressed the noise impact of the proposed operations at the Site on the neighbouring residential points of reception to the northwest and southwest of the Site. The noise study was prepared in accordance with the MOE Landfill Standards Guideline and MOE publication "*NPC-205 Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban)*" (MOE, 1995). The results of the noise assessment are presented under a separate cover. (No Ozone Inc., 2007).

The trees and heavy vegetation surrounding the waste mound will be retained to provide a natural visual screening of landfill operations and natural noise attenuation. The Site is not visible from Concession X. The nearest residences to the Site entrance are located 500 m to the northwest, across Concession X and 150 m to the southwest, across Concession X.

4.3.1 Compliance

Based on the results of the noise assessment, the long-term noise monitoring data confirms that the sound level limit of 55 decibels (dBA), as outlined in the Landfill Standards Guideline is applicable for the Site for the hours between 0700 and 1900 for each of the receptors identified in the noise assessment report (i.e. the residences to the northwest and southwest).

The results indicate that the landfill operations will generate noise levels that are at the MOE noise level limit of 55 dBA or below and less than 50 dBA (daytime) and 45 dBA (nighttime) for ancillary equipment.

4.4 Air Quality and Odour Assessment

The MOE requires that compliance with “*Ontario Regulation 419/05 Air Pollution – Local Air Quality*” (Reg. 419/05), and the pertinent air quality guidelines, is documented in an Emission Summary and Dispersion Modelling (ESDM) Report. As a result of issues and concerns identified during the public consultation undertaken as part of the EA Screening Process, an ESDM Report has been compiled for the landfill and is included under separate cover in the accompanying Air and Noise Impact Assessment Report (No Ozone Inc., 2007). The ESDM Report demonstrates compliance with Section 18 of Reg. 419/05 and the MOE’s odour guideline. It is acknowledged the Site will have to be evaluated again in the future to ensure it still meets the applicable regulations.

The ESDM Report for the Site assesses all sources and contaminants which, as defined by the MOE within Reg. 419/05 and Ontario Regulation 524/98, require C of A (Air and Noise) permitting. These sources and contaminants are as follows:

- Fugitive landfill gas emissions from the surface of the landfill; and
- Odour emissions from the active area of the landfill.

The ESDM Report was compiled in accordance with Section 26 of Reg. 419/05 and the MOE’s “*Procedure for Preparing an Emission Summary and Dispersion Modelling Report, July 2005*” (MOE, 1995), as appropriate.

Estimated emissions from these sources were input to the U.S. EPA AERMOD atmospheric dispersion model, to predict the maximum off-property point of impingement concentrations of each contaminant.

4.4.1 Compliance

The results of the modelling, as documented within the ESDM Report for the Site, shows that the expanded Site is capable of operating in compliance with Section 18 of Reg. 419/05 and pertinent MOE air quality guidelines (e.g., odour guideline of 1 OU/m³).

On-going compliance with Reg. 419/05 will require that the air quality modelling and ESDM Report be updated in accordance with the phase-in schedule provided by the MOE.

4.5 Lateral Gas Migration Assessment

Based on the physical setting of the Site, lateral migration of landfill gas through the subsurface may occur; however, due to the distance of the landfill from any buildings, the potential for impact by landfill gas is negligible.

As indicated in the Hydrogeology, Hydrology and Geotechnical Study Report (Water Rocks, Inc., 2007), the shallow groundwater table is located approximately 2 m or more below ground surface.

In the *Guideline for Assessing Methane Hazards from Landfill Sites* (MOE, 1987) it is stated that “a commonly applied rule of thumb is that significant methane migration may extend for a distance equal to 10 times the depth of landfill between the ground surface and the water table”, (i.e., 10 times the effective thickness of refuse, H). Moreover, this *Guideline* goes on to say that “any proposed development may be approved if it can be shown that it is at a distance in excess of D in the relationship $D = 10H$.”

If the depth to the groundwater table is conservatively taken as 2 m, “D” would equal 20 m. As discussed in Section 4.2, the on-Site buffer zones that will be provided meet or exceed this conservative approximation of “D”.

In light of the physical setting, the potential for lateral migration at this Site is negligible. No subsurface landfill gas monitoring is proposed at the property boundaries.

5.0 SITE EXPANSION DESIGN

The following chapter presents the design for the proposed expansion of the Site. The objective of the design is to optimize the use of the landfill while minimizing the potential for negative environmental impacts, in accordance with the Ontario Landfill Standards and Reg. 232/98.

5.1 Site Entrance Facilities

The current Site layout, scale house and waste diversion facilities are illustrated in Figure 2. The Site entrance is from Concession X and is located in the southern half of the Site. Access to the Site is controlled by a page-wire fence along Concession X at the western boundary of the Site with a lockable gate at the Site entrance.

A small attendant's gate house and scale house are located adjacent to the main Site access road, east of the Site entrance. The existing stockpile/storage areas are located adjacent to a round-about off the main access road, to the west of the landfill.

5.1.1 Site Access, Entrance and Roads

There are no plans to change the current Site access or layout of the entrance facilities, as there is no intent to increase the annual fill rate of the Site as part of the proposed landfill expansion.

All roads that receive truck traffic in the Site entrance area have been designed with turning radii commensurate with the largest trucks the City would expect to service.

During preparation of the expansion areas, the main access/perimeter road will be extended along the south side of the expanded waste footprint to provide continued access to the active areas of the landfill.

The main landfill access/perimeter road is surfaced with gravel. The quantity of vehicle traffic at the Site at this time and envisaged in the future does not warrant paving the road. The road will be wetted, as required, to minimize dust generation, as is the current practice.

It is proposed that all internal roads within the waste disposal areas will continue to be constructed and relocated, as necessary, to provide access to the active landfill area. The internal roads to the active fill area are constructed using various suitable waste materials, such as concrete, stones, boulders, bricks, and crushed glass overlain with gravel or some other permeable aggregate material.

5.1.2 Visual and Noise Screening

The trees and vegetation surrounding the Site will be retained as part of the proposed expansion to provide a natural screening of on-Site operations and any associated noise. Based on the results of the noise assessment carried out for the landfill expansion, it was found that the residential dwellings are located at a great enough distance and the dense vegetation and trees adequately shield the Site and Site operations from Concession X with regards to noise.

In response to issues and concerns raised during the public consultation undertaken as part of the EA Screening Process, the City will incorporate the following operational practices to further reduce negative effects associated with noise:

- All motorized equipment will be kept in good repair and be fitted with standard operational exhaust mufflers.
- “Drive-through” methods of moving equipment on-Site will be maximized to reduce the use of back-up beepers.
- Landfill operations will only occur between 0800 and 1700 hours.

5.1.3 Diversion Facilities

There are no changes to the layout or operation of the waste diversion facilities as part of the proposed expansion. It is proposed that waste diversion facilities will continue to operate as described in previous sections of this report.

Given the provincial policy and regulations concerning waste diversion from landfills, the Site will continue to provide critical support to the City and Province in their efforts to meet diversion targets while at the same time ensuring essential disposal capacity is available locally.

5.2 Base Grades

The approximate base elevation contours were estimated based on comparison to the natural ground surface topography in the proposed expansion area. Excavation below ground surface elevations is not part of the proposed landfill expansion.

5.3 Leachate Management

It is proposed that the landfill will continue to manage leachate by means of natural attenuation. The Site is currently in compliance with MOE Guideline B-7. In anticipation

of an application for a landfill expansion, the City purchased an additional 36.4 ha of property to the north and east of the existing Site. This property has been registered on title to the Site and it is proposed the C of A be amended to reflect these lands as a contaminant attenuation zone as part of the approval for the landfill expansion. The updated legal survey has been provided as an attachment to the amendment application.

The current landfill property, owned by the City, is of a sufficient size that the Site is expected to remain in compliance with MOE Guideline B-7 under the proposal expansion.

5.4 Waste Capacity and Materials Balance

5.4.1 Population

Population statistics for the City were obtained from the City for the years 2001, 2004 and 2007. A summary of these statistics is presented in the table below.

Year	Population
2001	3060
2004	3153
2007	3249

The population of the City grew by approximately 1 percent annually between 2001 and 2007.

5.4.2 Waste Generation Estimates

For the purposes of this study, the predicted waste generation rate for the City was calculated using two difference methods as follows:

Method 1

- Assume an annual waste generation rate of 0.4 tonnes/year/person for residential waste (as per the MOE “Approval Procedures for Landfill Site Service Area Changes, December 1994”)
- Assume a 2:1 ratio of residential waste to commercial waste; therefore assume 0.2 tonnes/year/person
- Assume a waste density of 0.6 tonnes per cubic metre of waste in place at the landfill
- Assume a waste to cover ratio of 4:1

Based on an annual population growth of 1 percent per year and an assumed waste generation rate of 0.6 tonnes/year/person the table below shows the predicted future waste generation from the City and volume consumption of the Site.

Year	Population	Predicted Waste Generation (tonnes)	Volume Consumption (including daily cover) (cubic metres)
2007	3,249	1,949	4,061
2008	3,281	1,969	4,101
2009	3,314	1,988	4,142
2010	3,347	2,008	4,184
2011	3,380	2,028	4,226
2012	3,414	2,049	4,268
2013	3,448	2,069	4,311
2014	3,483	2,090	4,354
2015	3,518	2,111	4,397
2016	3,553	2,132	4,441
2017	3,588	2,153	4,486
2018	3,624	2,175	4,530
2019	3,661	2,196	4,576
2020	3,697	2,218	4,621

Method 2

- Comparison of historical Site surveys to determine historical landfilling practices

A comparison of surveys completed at the Site in May 2005 and May 2007 indicates a change in the volume of the Site of 8,000 cubic metres. This change in volume is the result of the combined placement of waste and daily cover at the Site and suggests an average annual volume consumption rate of approximately 4,000 cubic metres per year.

Summary

The results of the two predictions are fairly similar. However, to be conservative the predicted annual landfill volume consumption rates will be used for predicting the remaining capacity of the Site and the number of years of operation the additional (expanded) landfill capacity will add to the Site life.

5.4.3 Calculation of Remaining Approved Site Capacity

The results of the May 2007 survey indicated that the Site had a remaining capacity of 17,240 cubic metres. Based on the projected waste generation rates calculated in the previous section, it is predicted that the currently approved landfill will reach maximum capacity in mid-2011, as indicated in Appendix A.

5.4.4 Proposed Expansion Waste Calculation Assumptions

The additional air space to be gained under this proposed expansion is 49,500 million cubic metres. Therefore, under the proposed expansion, the Site would have a total of 66,800 cubic metres of remaining capacity as of May 2007.

Based on an assumed waste to daily cover ratio of 4:1, it is predicted that the proposed expansion will be consumed by approximately 39,600 cubic metres of waste and will utilize approximately 9,900 cubic metres of daily cover material over the life of the proposed landfill expansion. Based on an estimated waste density of 0.6 tonnes per cubic metre, this would allow the receipt of an additional 24,000 tonnes of waste.

5.4.5 Calculation of Remaining Capacity Under Proposed Landfill Expansion

Using the assumptions stated under Method 1 in Section 5.4.2. the following table illustrates the remaining landfill waste capacity and predicted Site life, excluding placement of final cover, under the proposed landfill expansion. Detailed waste volume calculations are provided in Appendix A.

Year	Volume Consumption (cubic metres)	Remaining Capacity, including expansion (cubic metres)
2007	4,061	66,765
2008	4,101	62,663
2009	4,142	58,521
2010	4,184	54,337
2011	4,226	50,112
2012	4,268	45,844
2013	4,311	41,533
2014	4,354	37,180
2015	4,397	32,782
2016	4,441	28,341
2017	4,486	23,856
2018	4,530	19,325
2019	4,576	14,750
2020	4,621	10,128
2021	4,668	5,460
2022	4,714	746
2023	4,762	-4,015

It is predicted the expanded landfill will reach maximum capacity sometime between 2022 and 2023. Therefore, the proposed expansion would result in an increased Site life of 11 to 12 years.

5.5 Daily and Intermediate Cover

The MOE Landfill Standards and Reg. 232/98 state that the active faces of landfill sites should be covered daily, or whenever the Site is being operated, if not on a daily basis. The minimum thickness of daily soil cover is 150 millimetres (mm). As such, no less than 150 mm of soil will be placed over the active face of the landfill at the end of each working day. As previously stated, the waste capacity calculations assume a waste to daily cover ratio of 4:1.

Intermediate cover is to be applied to areas of the landfill which will not receive additional waste for periods in excess of several weeks or months. An intermediate soil cover thickness of 300 mm is generally considered adequate. As such, areas which are anticipated to remain inactive for more than 3 months will have 300 mm of intermediate cover placed over them.

Intermediate cover material will be consistent with final cover material. Intermediate cover placed on areas which have not reached approved final waste contours will be removed prior to resumption of landfilling in these areas. Intermediate cover placed on areas which have reached approved final waste contours will be considered part of the final cover thickness, provided the soil meets the final cover soil quality requirements outlined in Reg. 232/98 and described in Section 5.7.

Daily cover material will be obtained from construction/excavation activities completed within the City. Contaminated soils and wood chips may also be accepted at the Site and used for alternative daily, provided they meet with requirements of *Ontario Regulation 347 General – Waste Management* as a non-hazardous waste. Alternatively, should insufficient material be available through these means, additional cover material will be purchased from a local licensed aggregate producer.

5.6 Final Contours

The proposed expansion consists of extending the landfill footprint by 80 m to the east and maintaining the landfill waste height, excluding final cover, at the currently approved maximum waste height of approximately 10 m above ground surface (to elevation 267 m). The proposed final top of waste contours are illustrated in Figure 4. Three cross-sections through the proposed waste mound are also illustrated on Figure 4.

The cross sections on Figures 4 depict the base grades (i.e., approximate bottom of waste); the currently approved top of waste elevations; and, the proposed top of waste elevations. In addition, the cross sections include lines representing the approximate top of final cover (topsoil).

Intermediate cover placed on the landfill prior to reaching final waste contours will be removed prior to resumption of waste placement in that area of the landfill. Intermediate cover placed where the waste mound has reached final contours will be consistent with final cover materials and be considered part of the total final cover thickness, provided it meets the final cover soil quality requirements outlined in Reg. 232/98 and described in Section 5.7.

Final cover considerations are described in the following section. The regulatory requirements described in the Landfill Standards and associated Reg. 232/98 were considered during development of the expansion waste mound geometry. As such, the final above-ground side slopes are specified to be a maximum of 4H:1V, while the slope on the top deck of each alternative method is a minimum of 5% (20H:1V), in accordance with Section 6.12.2 of the Landfill Standards.

5.7 Final Cover

The regulatory requirements described in the Landfill Standards and associated Reg. 232/98 were considered for the proposed final cover requirements. A minimum thickness of 600 mm of soil cover, plus an additional 150 mm of topsoil will be placed, on the portions of the landfill which have reached final contours.

The cover soil can consist of general earth fill that could range from sandy soils to clay. It is not necessary to specify a particular soil gradation envelope. The cover soil should be placed in 300 to 400 mm lifts and compacted to at least 92 and 95 percent of the maximum standard Proctor dry density for clayey soils and granular soils, respectively. Following placement of the cover soils and topsoil, the closed portions of the Site will be monitored for vegetative growth. The final cover will be seeded by the City, should natural vegetation fail to become established after placement of final cover and topsoil.

With respect to contaminant levels in the final cover, the concentrations of substances in the final cover should not exceed the concentrations specified in Ontario Regulation 153/04, Table 3 (Full Depth Generic Site Condition Standards, Non-Potable Groundwater).

The Site is a natural attenuation site and it is expected that the leachate-impacted groundwater plume exceeding MOE Guideline B-7 will be contained within the boundary of the current contaminate attenuation zone. With an adequately sized contaminate

attenuation zone, limiting infiltration of precipitation into the waste mound is not considered to be a requirement of the final cover at this Site. Rather, its intent is to isolate waste from surface exposure and improve the aesthetics of the Site.

5.8 Landfill Gas and Odour Management System

The C of A does not contain conditions pertaining to the collection, treatment, or disposal of methane gas at the Site. As previously indicated, based on the physical setting of the Site, lateral migration of landfill gas through the subsurface may occur; however, due to the distance of the landfill from any buildings, the potential for impact by landfill gas is negligible.

Following landfill expansion, there will remain sufficient buffer area surrounding the waste footprint to mitigate the effects of potential lateral migration of landfill gas through the subsurface. Therefore, there are no plans to install landfill gas monitoring probes or establish a landfill gas monitoring program as part of the expansion of the landfill.

5.9 Surface Water Management System

As previously described, the Site does not appear to have any effect on Wett's Creek. Surface water runoff on the Site appears to infiltrate into the waste mound or into the sandy soils immediately adjacent the waste mound.

There is currently no surface water management system in place at the Site, nor is one proposed as part of the expansion.

6.0 SITE OPERATIONS

6.1 Landfill Development

The following subsections describe the proposed details related to the general Site development and landfilling sequence.

6.1.1 Phasing

It is proposed that the City will continue to develop the expanded portions of the landfill consistent with historic operations, however, the proposed landfill expansion will be developed by preparing smaller sub-areas or “Phases” and filling these areas to the approximate proposed final contours, as possible, as landfilling progresses. The proposed phase sequence is illustrated in Figure 4. Detailed waste calculations illustrating the proposed landfilling sequence are included in Appendix A.

It is proposed that landfilling will commence in the northwestern portion of the horizontal expansion area (i.e., Phase 1) while this last portion of the currently approved waste disposal area is excavated and prepared.

The divisions between phases illustrated on Figure 4 represent the approximate location in plan of the middle of the temporary interior waste slopes between phases.

The following criteria were assumed for the purpose of developing the proposed phase sizes:

- Phases were generally sized to accommodate the volume of waste and daily cover expected over an approximate 3 to 4-year timeframe;
- It was assumed that the waste would be received at the rate shown in the table in Section 5.4.2 of this report;
- An average combined compacted waste and daily cover density of 0.6 tonnes per cubic metre was assumed; and
- A waste to cover ratio of 4:1 (by volume) was assumed.

It is proposed that the Site will generally be developed as follows:

- Upon receiving an amendment to the C of A, the City will continue waste filling operations until the original landfill reaches its currently approved geometry. The City will prepare the surface in the proposed Phase 3A area at the north eastern corner of the existing landfill by clearing any existing vegetation and generally

levelling the area. Once landfilling in Phase 2 has been completed the City will then shift landfilling operations from the existing active area to this newly prepared area (i.e., Phase 3A);

- During landfilling in Phase 3A, the City will also raise the east sideslope area of Phase 2, to the new approved contours, and prepare the surface in the proposed Phase 3B, to the south of the active landfilling area, for landfilling;
- Landfilling will continue progressively in a similar manner through Phases 3B, 4A and 4B; and
- Interim and final cover will be applied progressively as final grades or interim grades between phases are achieved.

6.1.2 Site Development Schedule

The volumes of each phase of the landfill expansion were calculated using the CAD software, 3D Civil 2008. The volumes of each proposed landfill expansion phase, excluding final cover, were as follows:

Landfill Phase	Volume (cubic metres)
3A	13,900
3B	13,700
4A	10,800
4B	11,100

The approximate phasing of the development for landfilling in each phase, based on the estimated waste generation rates is expected to be:

Phase 3A and northern Phase 2 wedge: 2011 – 2014

Phase 3B and southern Phase 2 wedge: 2014 - 2017

Phase 4A: 2017 - 2019

Phase 4B: 2019 - 2023

Total Duration of Expansion Filling: 11 – 12 years

6.1.3 Site Preparation Report

A Site Preparation Report (letter) will be prepared prior to commencement of landfilling in each new phase to document any Site clearing or ground improvement work that is carried out and to confirm that the expansion of the Site is being carried out in accordance with this D&O Report.

6.2 Routine Operational Components

Except where changes are noted in this report, it is proposed that the Site will continue to be operated in accordance with the existing C of A. The following subsections describe the routine operational practices proposed for on-going landfilling operations.

6.2.1 Operating Hours

Hours for the receipt of waste shall be from 8:00 am to 5:00 pm Tuesday through Saturday, inclusive. The Site shall not receive waste prior to 8:00 am or after 5:00 pm on these days. Waste acceptance outside of these hours requires the approval of the MOE District Manager. Prior to changing the hours, the City will carry out consultation with the local residents.

Landfilling and/or Site preparation operations may occur at the Site from 8:00 am to 5:00 pm on Mondays; however no additional waste will be accepted during these hours. Equipment/Site maintenance may occur outside these hours. However, the Site shall be secured after operating hours.

6.2.2 Site Staffing

There is a minimum of two attendants on-Site at the landfill during operational hours. However, staffing levels may change throughout the year to accommodate seasonal changes in Site operation, such as additional staff to accommodate leaf and yard waste collection in the spring and fall and Christmas tree collection in January.

During Site operational hours, one attendant will verify the source of the waste, the nature and acceptability of the waste, ensure the waste is properly weighed, issue scale tickets, and collect the associated tipping fees. Another attendant then directs the vehicle to the appropriate location to unload waste and/or recyclables and monitors and directs waste placement in the active landfilling area.

6.2.3 Site Equipment

The Site equipment generally consists of an in-ground weigh scale, a landfill compactor, a front-end loader, a pick-up truck, and a truck used for the transportation of roll-off containers. Based on equipment maintenance schedules and seasonal variations in Site operation, such as the receipt of additional material during leaf and yard waste collection and Christmas tree collection, the City may add or remove equipment from service at the Site. In addition, licensed contractors may bring trucks onto the Site to remove the stockpiled scrap metal, recyclables and used tires off-Site.

6.2.4 Waste Acceptance Procedures

Waste acceptance procedures are as follows:

1. The Site attendant registers all vehicles entering the Site. The vehicles are weighed and the attendant records the origin of the waste, type of waste, driver identification, truck identification and other notes on a grid system that records where the waste will be physically placed in the landfill.

Recyclable materials are not weighed on the inbound weigh scales. Rather, the quantity of recyclable materials collected at the Site is recorded based on the outbound weigh scale tickets for the full roll-off bins.

2. After being registered, the vehicle is directed to the active disposal face. Clear signage directs vehicles to the unloading areas, and a second attendant monitors appropriate waste placement at the tipping face.
3. The second attendant directs the traffic at the working face of the landfill. The attendant is instructed as to the types of waste allowed on Site and the types of waste not allowed. All containers must be open and void of any liquid material before they can enter the Site. Unopened containers are refused. Unacceptable waste that is inadvertently dumped at the Site is either placed back into the vehicle in which it was hauled to the Site, or temporarily stored in one of Site's containers for future off-Site removal.
4. All weight tickets are kept on-Site along with daily and monthly summaries of waste received. Materials rejected from the landfill are reported to the Local MOE District Office. Records of rejected waste and material removed from the Site are maintained at the Site office.

6.2.5 Waste Placement and Daily Cover Procedures

Waste received by the facility consists of approximately 67% domestic household waste, and 33% commercial and industrial solid non-hazardous waste. The middle portion of Phase 2 was active in 2008.

The landfill should continue to be filled from the current active area towards the southern portion of Phase 2 in successive lifts until final contours are reached. The waste should be placed in lifts of thicknesses between 0.45 m and 0.6 m. By placing material in thin lifts and compacting the waste, the waste density will be increased, thus reducing the rate of landfill space consumption.

Once the proposed expansion final Site geometry has been approved by the MOE, the City should clearly mark the limits of the waste footprint (fill area) with flags or stakes. Markers should also be placed on the Site to provide vertical and horizontal guides for future waste placement to reach the approved final contours. Old utility poles have been successfully used for these purposes at other sites.

The length of the operating face should be kept to a minimum (i.e., maximum length of 10 m) to help control insects, rodents, scavenging by birds, blowing litter, fires, odours and to maintain an aesthetically pleasing Site appearance. The intent is to ensure that deposition of waste will not adversely affect the environment and public health while the Site is in operation.

No waste is accepted, deposited or removed from the Site unless the Site supervisor or a trained designate is present.

6.2.6 Handling of Other Wastes

Upon entry to the Site, the attendant assesses the waste and directs the driver to the appropriate area of the Site. Waste materials other than those to be landfilled are directed to the round-about off the main landfill road west of the landfill where recyclable materials and HHW are stored for transfer off-Site. A description of the management of each type of waste is described in the following sections.

Rubber Tires

Rubber tires arriving at the Site are segregated and stored in a specified area within the operations compound in stockpiles. The total number of tires on Site at any given time does not exceed 750. The tires accumulate until sufficient numbers are present on-Site and then the tires are removed for recycling.

Recyclable Materials

All recyclables collected within the City are taken to the roll-off containers in the centre of the round-about off the main landfill road west of the landfill. From there they are weighed on the Site scale by the scale house attendant and transferred off-Site by a recycling contractor.

Scrap Metal

Scrap metal is collected in a stockpile to the north of the round-about off the main landfill road west of the landfill. The City notifies a scrap metal dealer once the stockpile

reaches a certain volume and the scrap metal dealer subsequently removes these items from the Site.

Refrigerated Appliances

Refrigerated appliances (e.g., air conditioners, refrigerators, freezers, heat pumps, etc.) that are delivered to the Site have the CFC refrigerant removed prior to disposal. A trained and MOE certified technician removes the CFC refrigerant and affixes a sticker to the appliance once this has been completed. These items are then placed with the scrap metal stockpile.

Contaminated Soil

Contaminated soil may be received occasionally at the Site. Acceptance into the landfill is contingent upon its generator demonstrating to the City that the contaminated soil is a non-hazardous waste in accordance with Ontario Regulation 347. Acceptable soil received at the Site is then used as alternative daily cover.

Household Hazardous Waste

The Site is approved, under C of A #G 000001 Amendment No. 1, to operate a HHW transfer facility. The facility is located to the north of the round-about off the main landfill road west of the landfill and consists of a roofed building on a slab on grade foundation with open walls to provide adequate ventilation. The facility is surrounded by a fence with a lockable gate.

The City operates Household Hazardous Waste Days approximately six (6) times a year on Fridays from 9:00 am until noon, generally in the spring, summer, and fall. During these times, regular landfill activities are temporarily shut down. In addition, residents are permitted to drop off such items as used oil, automotive batteries, and propane tanks at any time.

During operating hours, the facility is staffed by the Site attendant who is responsible for inspecting all wastes received to determine their acceptability. The attendant is also responsible for handling and packaging the received waste appropriately so that it can be removed from the Site in accordance with MOE regulatory requirements. Materials collected during Household Hazardous Waste Days are shipped off-Site by a licensed contractor for proper disposal or recycling, within one month of their collection on-Site.

The City has established a monthly summary to track material manifests and inspections of the household hazardous waste facility. Any spills or other problems are also recorded, and are reported to the MOE Spills Action Centre as required. These summaries are submitted as part of the annual landfill report, to the MOE District Manager.

The HHW transfer facility has signs indicating a prohibition on smoking in the vicinity of the facility.

Wood and Brush

All wood waste and brush currently received at the Site is stored in a stockpile to the north of the round-about off the main landfill road west of the landfill. It is periodically chipped a local contractor with a mobile Part V approval. The wood chips may then be applied over the active fill area as alternative daily cover.

6.2.7 Open Burning of Waste

The open burning of domestic waste at the Site is strictly prohibited.

6.2.8 Scavenging

Scavenging at the Site is strictly prohibited. However, the prohibition on scavenging is not intended to prevent the operation of the recycling area at the Site.

6.3 Leachate Management

Leachate will continue to be managed through the operation of the landfill as a natural attenuation site, as per the present practice.

6.4 Stormwater Management

Stormwater will continue to be managed as per present practice. There are no formal stormwater management features at the Site.

6.5 House Keeping and Controls

6.5.1 Dust

The landfill has the potential to generate fugitive dust emissions. Fugitive dust sources have been assessed in accordance with MOE guidance. In order to minimize the potential for off-property impacts due to fugitive dust, the following practices will be implemented at the Site:

- A speed limit of 20 km/hour will be enforced while vehicles are traveling on the unpaved on-Site roads. This limit will be posted on-Site and communicated to vehicles entering the Site by the scale house attendant; and
- Where possible, material transfers and drop points will be kept as low as practical to reduce dust generation.

The Site will maintain a log to record the day and time of any fugitive dust complaints. This log will describe activities related to the investigation of the complaint, and also record the mitigating measures implemented to address concerns.

6.5.2 Noise

Based on the outcome of the noise assessment, no formal noise monitoring program is required for the Site.

All landfilling operations at the Site will be carried out during normal business hours. The Site is located in a remote rural setting. The distance to the nearest residence to the northwest is 500 m from the Site entrance. The distance to the nearest residence to the southwest is 150 m from the Site entrance and 350 m to the southeast corner of the waste footprint.

Any complaints regarding the operations are noted and receive a prompt response. These are also recorded, along with the mitigating measures taken, and reported in the Annual Monitoring Report submitted to the Local MOE District Office.

6.5.3 Litter

Litter has not been a problem at the Site because of the use of daily cover. Periodic checks are made of the finished and active areas of the Site for litter. Litter fencing is maintained at the active working face, and temporary fencing is maintained in areas of the landfill perimeter as a supplementary litter control measure. Fencing is cleaned of litter as required.

6.5.4 Vectors and Vermin

The presence of vermin and vectors has not been a problem at the Site. Periodic checks have proven that no vermin exist at the Site due to proper landfilling procedures. If vermin are detected at the Site, a registered pest control company is retained to control the problem. Although some seagulls do frequent the Site in summer months, this is not considered a health or environmental problem because of the small numbers present.

6.5.5 Odour

Waste compaction and the application of daily cover reduce the potential for odour problems. If odours persist then efforts are made to cover the waste with non-odorous waste or daily soil cover.

For the proposed expansion, odour emissions have been assessed and have been predicted to be in compliance with pertinent MOE guidelines (i.e., not cause an adverse impact). However, in an effort to reduce the potential for odour emissions and off-property impacts, daily inspection of the landfill for leachate outbreaks will be carried out and any required cover repairs will be carried out immediately.

The Site will maintain a log to record the date, time, wind direction and weather conditions for any odour complaints made to the City. This log will also describe activities related to the investigation of the complaint, and also record the mitigating measures implemented to address concerns.

6.6 Complaints Procedure

As per the current practice, complaints from residents about the operation of the landfill (e.g., noise, dust, odour, litter) will continue to be logged with date and approximate time they occurred as well as the weather conditions at the time. At the time of complaint, the Site staff will attempt to determine the source of the complaint. If a source of the complaint can be identified, it will be logged and the party making the complaint will be notified of the source. The action taken to resolve the situation is documented in the annual landfill reports submitted to the Local MOE District Office.

6.7 Record Keeping

Site inspection records and daily waste records shall be retained at the Site for a minimum period of five years. The records shall include the following information:

- a) The type, date and time of arrival, hauler and/or customer, and quantity (by weight) of the following:
 - all waste received for disposal;
 - alternative daily (e.g. contaminated soil and wood chips) and intermediate cover materials received; and
 - materials received for recycling.
- b) All complaints received from the public and a description of the action taken in response to the complaint.
- c) Calculation of the total quantity (by weight) of waste received at the Site for each day.
- d) The type, date and time of departure, hauler, and quantity (by weight) of all materials transferred off-Site including recyclable materials.
- e) Results of any tests completed to determine the acceptability of the waste including daily, intermediate and final cover at the Site.
- f) A summary of any rejected waste including waste type, quantity, reasons for rejection, and origin of the rejected waste.

6.8 Winter Operations

During the winter, snow removal is generally carried out by City staff using the City's front-end loader. Snow removal on the temporary landfill access roads is carried out by City staff using the landfill compactor.

6.9 Fencing

Currently the western perimeter of the original landfill property is fenced and the Site access road is controlled by a gate that is locked during non-operating hours.

Fencing is not existing or proposed along the other property boundaries because access to the Site along these boundaries will be controlled by the presence of heavy vegetation surrounding the Site.

6.10 Signage

A clearly visible sign is posted at the Site entrance with the following information:

- a) MOE Certificate of Approval Number;
- b) Identification of SmallCity as the Site operator;
- c) Site operating hours;
- d) Household Hazardous Waste Depot operating hours and details;
- e) Material recycling facility operating hours and details;
- f) Accepted wastes;
- g) Prohibited wastes;
- h) Telephone number for emergencies; and
- i) Health and safety requirements (e.g. restricted areas, required protective equipment, etc.).

Health and safety signage is posted around the Site perimeter and work areas.

The same signage will be maintained under the proposed Site expansion with updates, as necessary.

6.11 Site Inspection and Maintenance

A routine program of inspection and maintenance of all Site facilities is carried out to ensure that the Site facilities remain in good repair. Any deficiencies or deviations noted from the approved operations plan are addressed promptly. Operations/maintenance observations are made daily in the course of routine operations and specific inspection items are identified in the table below.

Daily Observations

Item	Description
1	Evidence of any unacceptable wastes or illegal dumping.
2	Adequacy of the daily cover.
3	Loose litter on-Site and/or any off-Site.
4	Unacceptable levels of odours.
5	Evidence of leachate seeps in the immediate vicinity of the active landfilling area and/or waste mound perimeter.
6	Other (include short written summary of issue observed).

Note: Visual observation made each day when waste spreading, compaction, and covering operations are carried out. Written records of daily inspections are not maintained.

A thorough bi -weekly inspection is carried out with the results documented. Inspection items are identified in the table below.

Bi-Weekly Inspections

Item	Description
1	Condition of Site access roads (i.e., potholes, snow removal, etc.).
2	Condition of Site security facilities (i.e. fencing, gates, signage, etc.).
3	Scale in good working order.
4	Inspection of waste handling and placement practices.
5	Inspection of daily and interim cover placement practices.
6	Inspection of litter control practices.
7	Other (include short written summary of issue observed).

Operating staff will maintain a logbook with appropriate checklists and maintenance will be carried out on an as-required basis. A summary of these inspections is included in the annual landfill report submitted to the Local MOE District Office.

The City also performs an annual spring cleanup during which the landfill is inspected for erosion. Eroded areas are fixed and litter is collected as required.

6.12 Annual Operations Report

An Annual Monitoring Report describing the groundwater and surface water monitoring programs, and Site operations activities for the previous year has been prepared each year since 1987, when monitoring began at the Site. It is intended that groundwater and surface water monitoring will continue until the landfill reaches its final capacity and is closed. Prior to closure, a Closure Report will be submitted to the MOE for approval. Post-closure monitoring will be evaluated at this time and a proposed post-closure monitoring program will be included as part of the Closure Report. It is proposed that the scope and frequency of the Annual Monitoring Report may be modified in writing from time to time by the MOE District Manager.

6.13 Public Liaison Committee

The City formed a public liaison committee in 2000. This was initiated by sending out invitations to nearby residents living along Concession X and County Roads 1 and 2, as well as municipal representatives, to obtain public input into Site activities. In addition to minutes of regular (semi-annual) meetings, copies of the annual landfill report are also made available to the committee. As a result of the Environmental Assessment Screening Process, additional invitations to join the committee were sent out to residents who had purchased property in the vicinity of the Site since 2000.

7.0 SITE MONITORING PROGRAMS, TRIGGER MECHANISMS AND CONTINGENCIES

The expansion of the Site has been designed to incorporate mitigation measures up front to minimize the potential environmental effects. Although efforts have been made to be conservative in estimating the environmental effects, there is always a degree of uncertainty in any prediction of effects. Effective monitoring and contingency measures address this uncertainty by reducing any concern about the potential for future unexpected effects.

An effective monitoring program provides results to indicate that the facility is working as expected, that mitigation measures are effective, and that unforeseen problems are identified and addressed in a timely manner. The proposed monitoring programs for groundwater, leachate, and surface water and related trigger mechanisms are described in detail in the Hydrogeology, Hydrology and Geotechnical Study Report (Water Rocks, Inc., 2007). A brief summary of the various components is provided in the following subsections.

7.1 Groundwater and Leachate

7.1.1 Groundwater and Leachate Monitoring

The groundwater monitoring locations at the Site are shown on Figure 2. This includes property boundary compliance monitors installed in 2007, following the purchase of the additional 36.4 ha of property for use as additional contaminant attenuation zone to the north and east of the original landfill Site boundaries. These wells have been added to the current groundwater monitoring program at the Site.

There are no monitoring wells within the existing or proposed waste footprint. The most leachate impacts observed to date have been at groundwater monitoring well MW14. As such, this monitoring well currently provides the best data for characterizing typical leachate chemistry at this Site.

It is proposed that the groundwater monitoring program as described in the Hydrogeology, Hydrology and Geotechnical Study Report (Water Rocks, Inc., 2007), will continue.

7.1.2. Proposed Groundwater Trigger Mechanism

The groundwater and surface water trigger mechanism is described in the Hydrogeology, Hydrology and Geotechnical Study Report (Water Rocks, Inc., 2007), including the Compliance Evaluation Parameters and Compliance Evaluation Monitoring Wells for the Site.

The trigger concentrations for the Site shall be the Reasonable Use Performance Objectives for the compliance evaluation parameters. The Reasonable Use Performance Objective refers to the maximum allowable concentration for a compliance evaluation parameter in groundwater at the point of compliance under MOE Guideline B-7.

The objective of the groundwater trigger mechanism for the Site is to use the results of the ongoing groundwater monitoring program to assess Site compliance with MOE Guideline B-7, and to trigger implementation of a contingency plan when and if necessary so to prevent leachate-impacted groundwater in excess of MOE Guideline B-7 from migrating beyond the property boundaries of the Site.

Any observed exceedance of the trigger concentration(s) will be verified by re-sampling for the parameter(s) of concern within one month of the original sampling session at which non-compliance with the trigger was initially measured. If the exceedance is not confirmed by the follow-up sample (Special Monitoring Session), then the initial exceedance will be considered anomalous and will be discounted. Historical trends in groundwater quality at the trigger location shall also be used to assess whether or not monitoring results are anomalous. If the initial trigger exceedence is confined, the City will notify the MOE upon receipt of results, no later than 60 days after the initial sampling that showed non-compliance.

Concurrent with the Special Monitoring Session will be the initiation of a three-step process for the purpose of determining whether implementation of an additional investigation program and/or the contingency plan is warranted. The three-step process would be as follows:

Step 1

Assess whether or not non-compliance with the applicable trigger concentration is likely due to migration of the landfill leachate plume as a whole or whether it is partially or wholly explicable by other factors. This will be achieved by considering trends in parameter concentrations at all relevant monitoring locations.

Step 2

Discuss the results of Step 1 with the City, consultants, and the MOE to decide whether implementation of an additional investigation program and/or the contingency plan is warranted.

Step 3

If the conclusion to Step 2 is affirmative, then the additional investigation program and/or contingency plan would be formulated and would be implemented.

The contingency plan, as described later in this section, shall be implemented when a trigger concentration at a compliance evaluation monitoring well has been exceeded during two consecutive monitoring sessions.

7.1.3 Groundwater Contingency

Under MOE Guideline B-7, the owner of a waste disposal site is responsible for preventing unacceptable off-property groundwater impacts. Should the ongoing groundwater monitoring program define the existence of, or potential for, unacceptable impacts, the owner shall prepare and present a mitigation plan for the approval of the MOE. In this event, actions taken by the City to prevent or remediate the off-property impacts could consist of:

- a) acquisition of additional land to bring the Site into compliance with MOE Guideline B-7;
- b) gaining control over the contaminated groundwater to bring the site into compliance; or
- c) developing and implementing groundwater control/treatment measures to bring the site into compliance with MOE Guideline B-7.

7.2 Surface Water

7.2.1 Surface Water Monitoring

As previously described, the only surface water body present on the Site property is Wett's Creek, which runs from the northwest towards the southeast across the southwest corner of the Site property to the southwest of the approved waste footprint.

A surface water sampling program to evaluate the existing flow and monitor for impacts to Wett's Creek as a result of landfilling operations at the Site has been followed historically and it is envisioned that the same sampling program would be applicable

during the expansion of the Site. The surface water monitoring locations are shown in Figure 2. Details of the current surface water monitoring program at the landfill are described in the Hydrogeology, Hydrology and Geotechnical Study Report (Water Rocks, Inc., 2007).

Based on the results of the surface water quality and flow monitoring water quality in Wett's Creek, it does not appear to be impacted by the Site. This is also supported by the inferred direction of groundwater flow (to the northeast) in the vicinity of the Site. The current and historic water quality also indicates that the Site is in compliance with the PWQO.

8.0 CONCLUSION

In summary, the SmallCity landfill expansion will be constructed in a manner that meets all local and provincial regulations and requirements. The Site will continue to be operated in a manner that is consistent with generally accepted best management practices for natural attenuation landfills in the province of Ontario.

Yours truly,

ENG Consulting Inc.



Jordan McGrady, P.Eng.
Senior Environmental Engineer



REFERENCES

ENG Consulting Inc, April 2007. *Environmental Assessment Screening Report: Proposed SmallCity Landfill Expansion.*

Ministry of the Environment, July 2005. *Procedure for Preparing an Emission Summary and Dispersion Modelling Report, Version 2.0* (PIBS 3614e02). Queen's Printer of Ontario.

Ministry of the Environment, November 1999. *Guide for Applying for Approval of Waste Disposal Sites* (PIBS 4183e). Queen's Printer of Ontario.

Ministry of the Environment, May 1998. *Landfill Standards: A Guideline on the Regulatory and Approval Requirements for New or Expanding Landfill Sites* (PIBS 3651e). Queen's Printer of Ontario.

Ministry of the Environment, 1995. October 1995. *Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban)*, Publication NPC-205 (PIBS 3406e). Queen's Printer of Ontario.

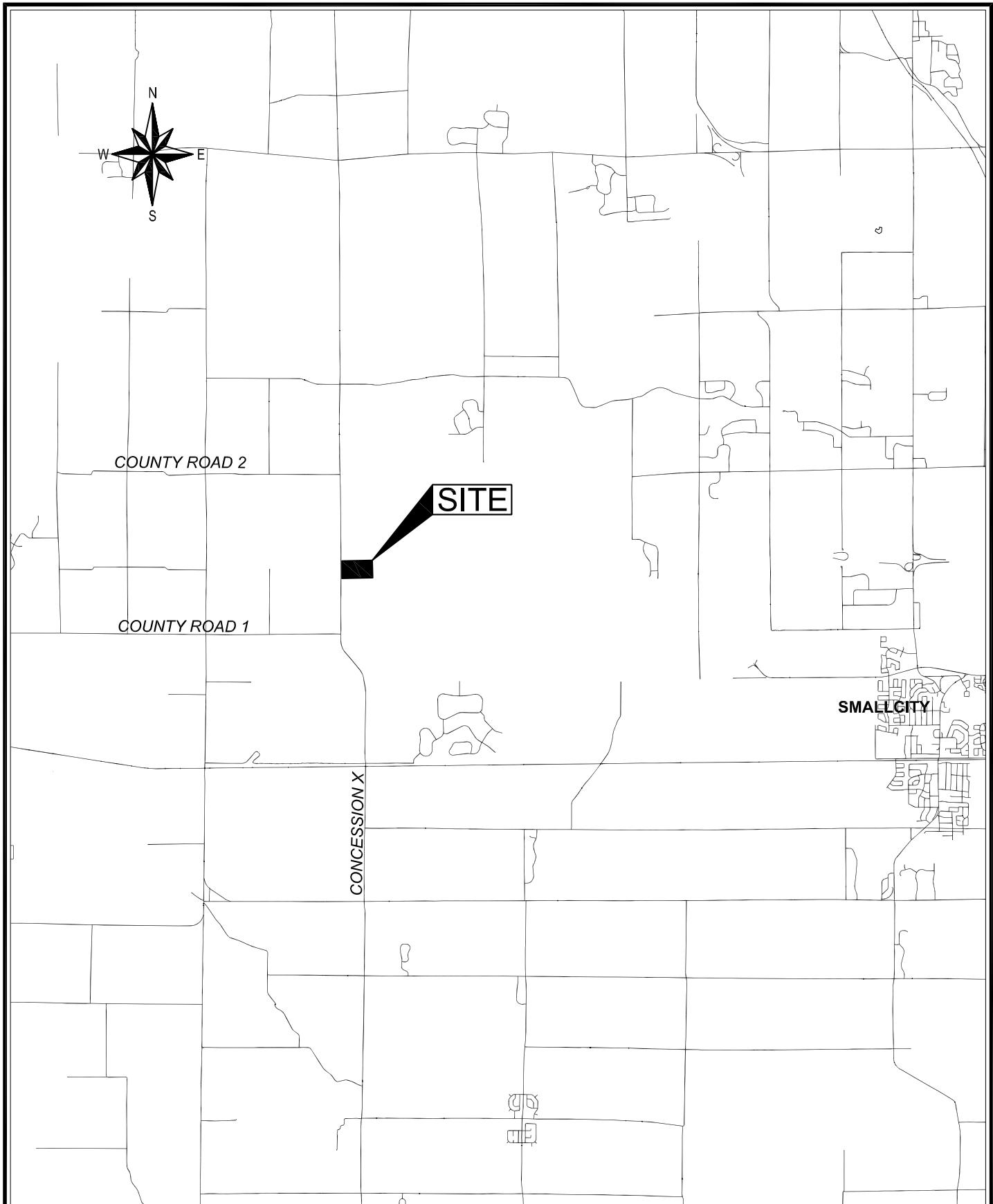
Ministry of the Environment, 1994. April 1994. *Guideline B-7: Incorporation of the Reasonable Use Concept into MOE Groundwater Management*. Ontario Ministry of the Environment Program Development Branch: Ontario Ministry of the Environment.

Ministry of Environment, 1994a. February 1999. *Water Management - Policies, Guidelines, Provincial Water Quality Objectives of the Ministry of the Environment and Energy*: Ontario Ministry of the Environment and Energy.

Ministry of the Environment, November 1987. *Procedure D-4-1: Assessing Methane Hazards from Landfill Sites, Appendix A to Guideline for Assessing Methane Hazards from Landfill Sites* (PIBS 2158-01). Queen's Printer of Ontario.

No Ozone, Inc., July 2007. *Air and Noise Impact Assessment Report: Proposed SmallCity Landfill Expansion.*

Water Rocks, Inc., June 2007. *Hydrogeology, Hydrology and Geotechnical Study Report: Proposed SmallCity Landfill Expansion.*



SCALE 1:100,000

DATE 30 Aug. 2008

DESIGN J.C.

CADD J.D.

FILE No.

Figure 1.dwg

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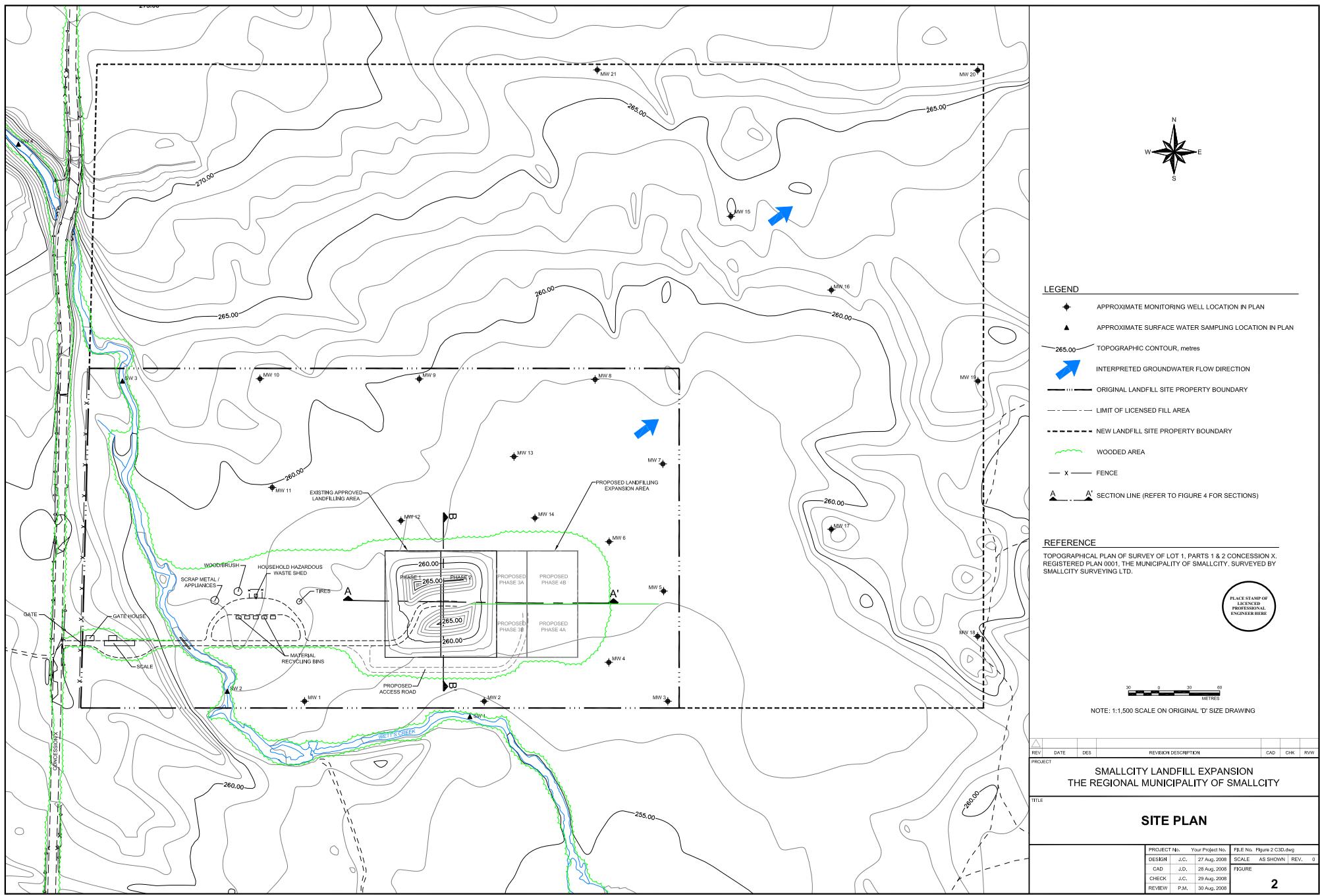
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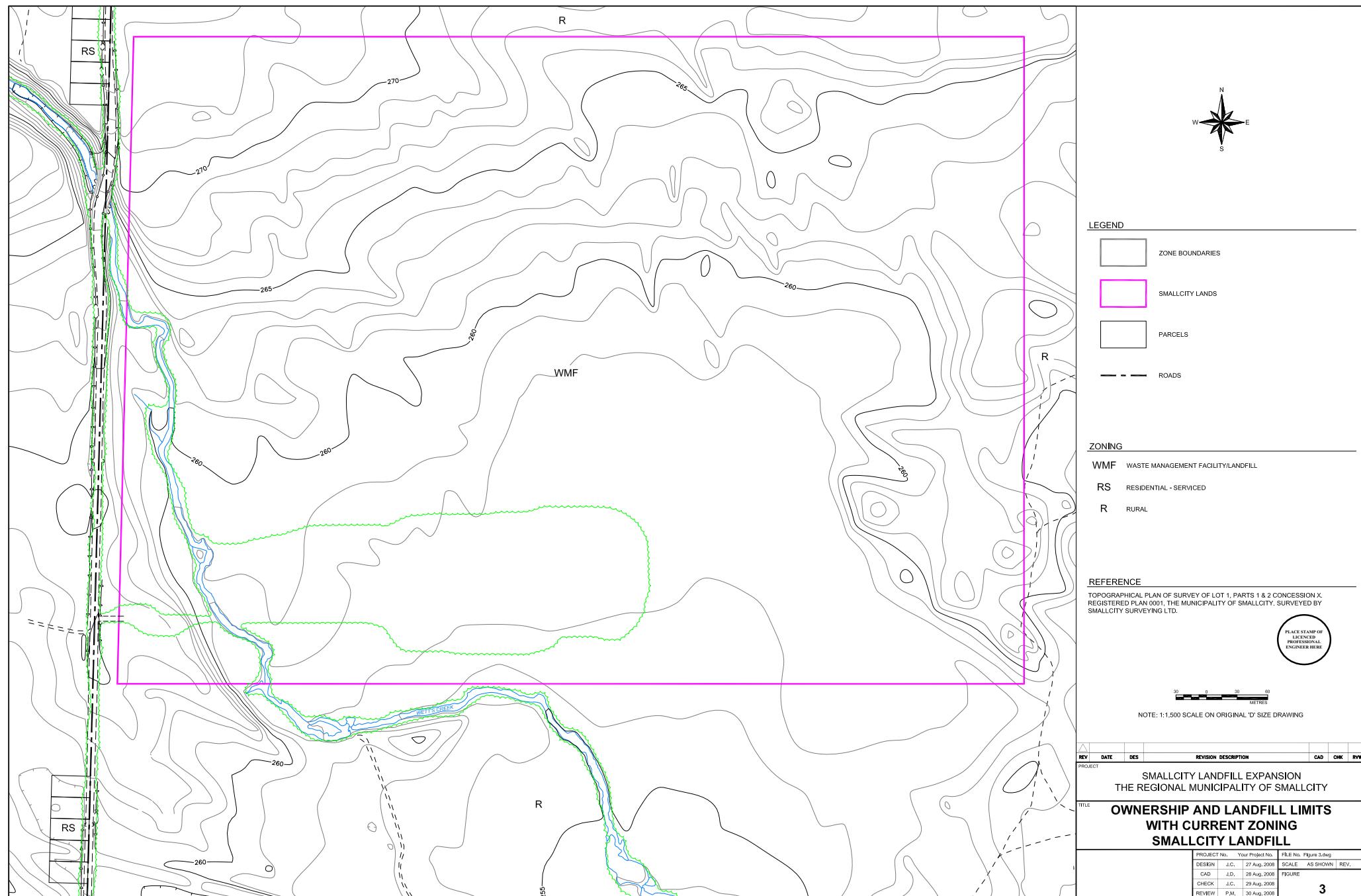
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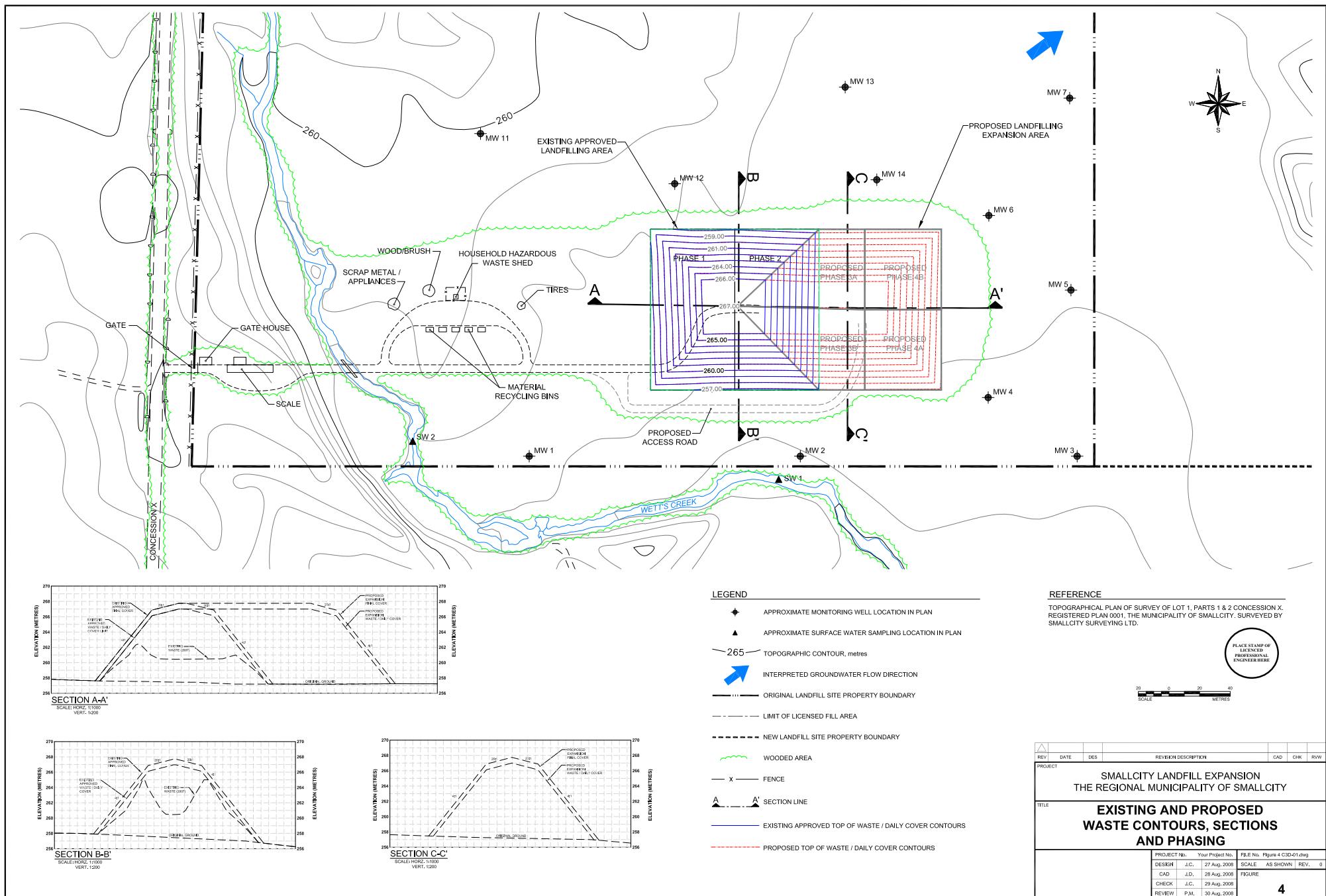
SMALLCITY LANDFILL EXPANSION
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FIGURE

1







Appendix A – Waste Volume Calculations

APPENDIX A
WASTE VOLUME CALCULATIONS

Appendix A – Waste Volume Calculations

The CAD software, 3D Civil 2008, was used to calculate the current waste volume, the currently approved waste volume (excluding 750 mm of final cover) and the proposed waste volume (excluding 750 mm of final cover). The volume of the landfill expansion (excluding final cover) was taken to be the difference between the currently approved waste volume and the proposed (expanded) waste volume.

Base Surface	Comparison Surface	Volume (cubic metres)	Description
Original Ground	2007 Waste Contours	32,616	Current landfill volume
Original Ground	Existing Final Waste Contours (excl. final cover)	49,855	Approved total landfill volume (excl. final cover)
Original Ground	Proposed Final Waste Contours (excl. final cover)	99,380	Proposed total landfill volume (excl. final cover)
		49,525	Volume of proposed landfill expansion (excl. final cover)

The CAD software, 3D Civil 2008, was used to calculate the volume of waste (excluding final cover) of each phase of the proposed landfill expansion (e.g. Phase 3A, 3B, 4A, and 4B). The wedge-shaped volume of increased waste capacity in Phase 2, as a result of the proposed landfill expansion, was calculated as the difference between the total volume of the four expansion phases and the volume of the proposed landfill expansion (49,525 cubic metres).

Note: Any intermediate or final cover currently in place in Phase 2 will be removed prior filling Phase ‘wedge’ area, or be left in place accounted against the remaining waste capacity of the expanded landfill.

Landfill Expansion Phase	Volume (cubic metres)
Phase 3A	9,626
Phase 3B	9,367
Phase 4A	10,846
Phase 4B	11,091
Total	40,930
Phase 2 ‘Wedge’	8,595

The landfill capacity calculation completed to determine the remaining waste/daily cover capacity in the landfill assumed that the Phase 2 ‘wedge’ would be filled in conjunction with Phase 3A and Phase 3B of the proposed landfill expansion. As such, the calculated volumes of these phases were adjusted to each include half of the ‘wedge’ volume.

Landfill Expansion Phase	Volume (cubic metres)
Phase 3A	13,923
Phase 3B	13,664
Phase 4A	10,846
Phase 4B	11,091

APPENDIX A - WASTE VOLUME CALCULATIONS

Assumptions:
 Annual 1% increase in population
 0.6 tonnes/person/year waste
 0.4 tonnes/person/year residential; 0.2 tonnes/person/year commercial
 0.6 tonnes/cubic metre waste and daily cover density

Landfill Expansion Volume	
Phase 3A	13,923
Phase 3B	13,664
Phase 4A	10,846
Phase 4B	11,091
	49,524

Cap. Remaining
exp. (cub. m)
49,525

Note:

All calculations exclude final cover.

All calculations assume intermediate cover placed prior to reaching final contours will be removed prior to placement of additional waste.

Year	Population	Waste Generation	Waste Generation	Volume (including daily cover)	Remaining Total Waste Capacity (Assuming Expansion)					
					With Expansion	Original LF	Phase 3A	Phase 3B	Phase 4A	Phase 4B
1999	3,000	1,800	3,000	3,750						
2000	3,030	1,818	3,030	3,788						
2001	3,060	1,836	3,060	3,825						
2002	3,091	1,855	3,091	3,864						
2003	3,122	1,873	3,122	3,902						
2004	3,153	1,892	3,153	3,941						
2005	3,185	1,911	3,185	3,981						
2006	3,216	1,930	3,216	4,021						
2007	3,249	1,949	3,249	4,061		66,765		17,240		
2008	3,281	1,969	3,281	4,101		62,663		13,139		
2009	3,314	1,988	3,314	4,142		58,521		8,996		
2010	3,347	2,008	3,347	4,184		54,337		4,813		
2011	3,380	2,028	3,380	4,226		50,112		587	14,510	
2012	3,414	2,049	3,414	4,268		45,844			10,242	
2013	3,448	2,069	3,448	4,311		41,533			5,931	
2014	3,483	2,090	3,483	4,354		37,180			1,578	15,242
2015	3,518	2,111	3,518	4,397		32,782				10,845
2016	3,553	2,132	3,553	4,441		28,341				6,404
2017	3,588	2,153	3,588	4,486		23,856			1,918	12,765
2018	3,624	2,175	3,624	4,530		19,325				8,234
2019	3,661	2,196	3,661	4,576		14,750				3,658
2020	3,697	2,218	3,697	4,621		10,128				14,749
2021	3,734	2,240	3,734	4,668		5,460				10,128
2022	3,771	2,263	3,771	4,714		746				5,460
2023	3,809	2,286	3,809	4,762		-4,015				746
Average Waste Generation (tonnes)		2113								

Remaining waste volume capacity in each landfill phase

ATTACHMENT 6

HYDROGEOLOGY, HYDROLOGY AND GEOTECHNICAL STUDY REPORT

Please Note:

This section has been included as a placeholder for the hydrogeology, hydrology and geotechnical study report. This report must be included with your application for approval, and must include all information required under Sections 8 and 9 and subsection 6(2)(c)(v) of Ontario Regulation 232/98.

**Hydrogeology, Hydrology and Geotechnical Study
Report**

SMALLCITY LANDFILL SITE EXPANSION

Submitted to:

The Regional Municipality of SmallCity
1234 Cul-de-Sac Road
SmallCity, Ontario
A1B 2C3

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June 2007

ATTACHMENT 7

AIR AND NOISE IMPACT ASSESSMENT REPORT

Please Note:

This section has been included as a placeholder for the air and noise impact assessment report. The inclusion of a detailed air and noise impact assessment report is not a mandatory requirement of a Part V application submission, however it supports the noise assessment required under sub-section 6(2)(c)(xiv) of Ontario Regulation 232/98 and assists in the timely review of applications if submitted.

*Air and Noise Impact Assessment Report:
Proposed SmallCity Landfill Expansion*

SmallCity Landfill Expansion

Submitted to:

The Regional Municipality of SmallCity
1234 Cul-de-Sac Road
SmallCity, Ontario
A1B 2C3

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July 2007